DOMESTIC ARCHITECTURE:

CONTAINING

A HISTORY OF THE SCIENCE,

AND THE PRINCIPLES OF DESIGNING

PUBLIC EDIFICES, PRIVATE DWELLING-HOUSES,

Country Mansions, and Suburban Villas,

WITH PRACTICAL DISSERTATIONS ON EVERY BRANCH OF BUILDING,

FROM THE

CHOICE OF THE SITE, TO THE COMPLETION OF THE APPENDAGES.

ALSO,

SOME OBSERVATIONS

ON

RURAL RESIDENCES, THEIR CHARACTERISTIC SITUATION AND SCENERY;

WITH INSTRUCTIONS ON THE ART OF

LAYING OUT AND ORNAMENTING GROUNDS;

EXEMPLIFIED IN SIXTY-THREE PLATES,

CONTAINING

Diagrams, and Exemplars of the various Styles of Domestic Architecture,

WITH A DESCRIPTION, AND WOOD-CUTS OF THE

APPROPRIATE FURNITURE, GARDEN, AND LANDSCAPE SCENERY OF EACH.

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AUTHOR OF THE "PRINCIPLES OF PRACTICAL PERSPECTIVE," "ELEMENTS OF PAINTING." "RUDIMENTS OF DESIGNING HOUSEHOULD FURNITURE APPROPRIATELY," AND "AN ELUCIDATION OF THE PRINCIPLES OF COMPOSING ARCHITECTURAL ORNAMENTS."

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PREFACE.

ENGLAND may justly boast her decided superiority over every other nation in Europe, in the grand display of numerous country-seats, situated in verdant lawns, and spacious parks with ornamental trees, sheets of water, and majestic rivers, surrounded by farms, smiling with verdure, and teeming with cultivation. To preserve those noble mansions from tasteless innovations being made by unskilful pretenders, no branch of art demands the attention of noblemen and gentlemen in a greater degree than that of Domestic Rural Architecture, contributing so essentially as it does, by a well-designed and elegant mansion or beautiful villa, to the comfort, as well as to the embellishment of their domains. To attain, however, a perfect knowledge of architecture, and the formation of a pure and classical taste, requires an acquaintance with history, geometry, the fine arts, optics, and perspective. In fact, it is quite impossible even for the professional man whose mind has not been enriched by study, and stored by travel and observation, to compose or select good combinations of forms and purity of style, or to observe the proper choice and appropriate adoption of the decorations required, suitable to the destined purposes of a rural residence.

Having remarked this much, the author may now be permitted to say, it has long been perceived by him, that a work for this purpose, which should contain the History of Domestic Architecture, the principles that govern and regulate compositions or designs, and exemplars of the various styles of Domestic Architecture, was a desideratum greatly wanting in our practical architecture, which has prompted him to this undertaking. How far that object has been accomplished in the work now submitted, must be left to a candid and liberal public to decide. The works hitherto published on the subject of architecture may be classed in three divisions: first, those for the professional architect, which contain examples and details of classic buildings in Athens and Rome; secondly, those for the country builder, containing miscellaneous designs for rural dwellings; and, lastly, those which contain geometrical lines for the operative mechanic. Hence no architectural work has appeared expressly for the dissemination and advancement of architectural principles, to guide the employer as well as the employed, and to improve or advance our national taste.

The object of the author in this work is not to make "every gentleman his own architect;" this might be equally prejudicial to the beauty, grandeur, and stability of our rural mansions: his

purpose is to excite a desire for cultivating taste, and to enforce the necessity of those noblemen and gentlemen who may be about to build, being acquainted with the theoretical parts of composition, so as to be enabled to decide respecting the abilities of the architect whom they may employ on that edifice where large sums of money are to be expended; whether such person be experimentally acquainted with the requisite internal conveniences of a mansion, the practical knowledge as to the construction of the building, the qualities of the different materials, and, lastly, though not the least, whether he possess an excellent architectural taste and genius, so that his design when built may meet with the approval of those who are competent judges. The cultivation of the arts and the refinement of national taste depend not on an artist alone, but on the general education of society, and the stimulus given by the patronage and munificence of noblemen and other opulent individuals, without which architects become useless, and their talents sink into obscurity, and such patronage can never be expected or contributed unless a taste has been first formed in the mind, or an admiration of art previously existed. "Much has been said on the charms of architecture as a study, and on its value as an accomplishment. The characteristics of the various styles, and the regulations which govern the arrangement and proportion of the leading features in each are necessary to be known. In forming new combinations, rich perspectives, scenic groupings, and pictorial union of architecture and landscape, there is ample scope for active imagination, taste, and feeling."

Were the theory of Architecture studied as part of a liberal education, we should not have that eternal sameness in our buildings, and noblemen and gentlemen would, when on committees in the prosecution of public works, either of utility or ornament, be better qualified to appreciate the talents of professional men, and be enabled at the same time to check those extravagant fantasies which some of our architects are too apt when left to their own judgment to fall into, from partiality to particular forms or bad taste; faults, which, it is to be regretted, are too commonly prevalent in England at the present day. I therefore advise the young architect always to be anxious in preserving a uniform style in his designs, public or private, and when employed to make additions or repairs, to keep up the same character in every edifice having the least pretensions to antiquity or regularity, as all innovations should be avoided, a practice common among some, who, when employed to make additions to old mansions, adopt that style of architecture which appears to meet their own notions, however discordant with the original edifice.

In the discourses on the elementary principles of designing public buildings and private dwelling-houses, the attention of the architect is directed to the three essentials in that department, which consist in convenience, strength, and beauty, associated with scenery; and that it is not by copying the particular parts of any admired edifice that qualifies him for a like work, but by ascertaining the principle of the composition as a whole. The dissertations also contain means whereby it is ascertained whether a place is healthy or unhealthy; if the water be good or bad, and as to the nature of the soil for the growth of plants and vegetation. The employer and the architect are next informed as to the style of architecture that is appropriate to particular sites; and for those who

have not acquired a knowledge of the practical part, the most important matters essential to be known by them and attended to in the erection of a country mansion are laid down, and the qualities of the materials to be used by the builder is explained, alike important to be known by the private gentleman and the architect.

No part in the history of national manners, says Mr. Hallam, illustrates the progress of social life so well as that of Domestic Architecture; for every change in the dwellings of mankind, from the rude cabin to the stately mansion, has been dictated by some principle of convenience, neatness, comfort, or magnificence. The different styles are therefore not to be considered as originating in the mere taste of a people for ornament, or the preference the eye may have given to certain peculiar forms; they owe their birth to definite circumstances; have sprung up with mankind, and like the sciences, have invariably proceeded from the simple to the complex. The examples I have selected for the exemplification of this work are those most expressive of each style, and remarkable for striking effect. All styles are given with the exception of the Gothic, which exclusively belongs to sacred architecture, and not to domestic.

Various styles have been introduced into this country; those being interesting, I have here set down in chronological order. First, we had the primitive British huts; next, Roman villas, on the invasion of Julius Cæsar; third, Saxon houses, in the time of Alfred the Great; fourth, the Norman castles, during Stephen's reign; fifth, Plantagenet castles and banqueting halls, reign of Edward III.; sixth, Lancastrian castelated mansions, and half-timbered houses during Henry VI.; seventh, Tudor manor-houses and halls during Henry VIII.; eighth, Tudor half-timbered cottages and town-houses, period, Elizabeth; ninth, Stuart mansions, reign James I.; tenth, Florentine mansions, time James I.; eleventh, Anglo-Italian mansions, by Inigo Jones, reign of Charles I.; twelfth, Flemish town-houses, reign of William III.; thirteenth, Chinese casinoes by Sir William Chambers, reign of George III.; fourteenth, Anglo-Grecian villas by Stuart, George III., and during the reign of George IV. the Arabian, Mahomedan, Indian, Moresque, and Egyptian styles were introduced into England.

On the situations of rural residences according to the different styles of architecture, although each style required that situation, and the situation dictated the character of the edifice, and influenced the design; yet many of our modern practitioners, either from being unacquainted with this as a principle, or wilfully neglecting to observe it as a rule, have erected buildings, not only out of place, but deficient in those accompaniments to which they owe many of their charms. That those gentlemen who may be desirous of having their intended new residences erected in character with the site, I have shown the four most familiar, yet different country mansions, accompanied by their natural characteristic scenery, with observations on the climate, healthiness, and unhealthiness of each situation; and also pointed out the most salubrious situation for the abode of certain invalids.

Ornamental Landscape-Gardening is also appended, which in various countries constitutes a part of the architect's profession, but in England is exclusively practised by other professors, few of our architects having cultivated the art, although so essentially connected with architecture. There are

beauties in nature on which no contrariety of opinion prevails, and there are deformities offensive to cultivated minds; on these assumptions Decorative Gardening may claim to be considered as an art, professing, as it does, to remove or veil objects repulsive to fine sensations, to introduce objects of taste, and to excite ideas of refined and delightful association. Under these circumstances, it is presumed that an art having for its basis a principle derived from nature in her most agreeable forms and varied hues, associated with the beautiful and the grand in architecture, will prove acceptable to those gentlemen who may contemplate the improvement of the grounds around their mansions.

In the Introduction to this work will be found stated the qualifications required to form an architect. By way of summary, I shall subjoin Uvedale Price's opinion of such a person in his Essay on the Picturesque: "Whoever," says he, "wishes his mansion to be a real decoration to his park, cannot do without an architect; not indeed a mere builder architect, but that person who has studied landscape as well as architecture, who is no less fond of it than his own profession, and who feels that each different aspect requires a different disposition of the several parts; in reality, this consideration points out the use, and greatly exalts the character of an architect. It is an easy matter, by means of some slight changes in what has already been done, to make out such a design as may look well upon paper; but to connect with correct design such a disposition of the component parts as will accord not only with the general character of the scenery, but with the particular situation, and the objects immediately around it, and which will present from a number of points a variety of well-varied and combined parts, forming so many pictures in nature, requires very different and very superior abilities. The difference of expense between good and bad forms is comparatively trifling—the difference in their appearance immense."

R. BROWN.

Topsham, Devonshire, May 2nd, 1842.

CONTENTS.

Page

A Succinct History of Domestic Architecture . 1

INTRODUCTION.

The qualifications required for an Architect . 67
On the principles of designing Public Buildings . 73
On the principles of designing Private Dwelling Houses 80
A Study 83
Rocks and Caverns frequently suggest an idea for the composition of a Building . . . 89

DISSERTATION I.

On Situations for Country Residences . . 91

DISSERTATION II.

On the Signs of a Healthful Situation . . 95

DISSERTATION III.

On the general Properties of Air . . . 99

DISSERTATION IV.

On the compound Nature and Qualities of Water 104
On the Formation of Wells 109

DISSERTATION V.

On the specific nature of the Vegetative Earth and its Substrata 111

DISSERTATION VI.

A cursory View of Geology, in reference to the origin, nature, qualities, and durability of various Stones used in building 114
On the causes of Decay in Stone . . 124

DISSERTATION VII.

A Caution where we ought not to build a House 126

DISSERTATION VIII.

Advice where to build a House . . . 130

DISSERTATION IX.

On the Principles of Construction . . 134

DISSERTATION X.

A caution on Laying Foundations . . . 136

DISSERTATION XI.

On erecting Walls 141

DISSERTATION XII.

On constructing Chimney-Flues . . . 144

Page

DISSERTATION XIII.

On the different characters of Chimney-Shafts . 148

DISSERTATION XIV.

Observations on appropriating Chimney-pieces to Rooms 150

DISSERTATION XV.

On the Designs and Situation of Stairs . . 152

DISSERTATION XVI.

On the Construction of Floors . . . 155

DISSERTATION XVII.

On the Formation of Partitions . . 158

DISSERTATION XVIII.

On the Principles and Geometrical Forms of Roofs . 159

DISSERTATION XIX.

On the different Coverings of Roofs . . 163
To ascertain the Soundness of Slate . . 165

DISSERTATION XX.

On the character of Porches 166

DISSERTATION XXI.

On the character and use of Porticoes . . 167

DISSERTATION XXII.

On classifying the orders of Architecture to Buildings suitable to different situations . . . 171

DISSERTATION XXIII.

Preliminary considerations on Designing and Drawing the ground-plan for a Country-Mansion 174

DISSERTATION XXIV.

On the general Compartition or Distribution of Apartments 177

DISSERTATION XXV.

General Remarks on the internal Proportions of Apartments 181

DISSERTATION XXVI.

Of the Proportions of separate Apartments . . 183

DISSERTATION XXVII.

On the character of Halls 186

DISSERTATION XXVIII.

Of the Forms of Vestibules and Saloons . . 188

Page

DISSERTATION XXIX.

On the Situation and Proportion of Galleries . 189

DISSERTATION XXX.

On Front Entrance Doors 192

DISSERTATION XXXI.

On the various Forms and Proportions of internal Doors 195
Ancient Locks . . . . . —
Ancient Hinges 196
Devices on Secret Doors 197
Ancient Painting on Doors 198

DISSERTATION XXXII.

On the inside Decorations of a House . . 198

DISSERTATION XXXIII.

On Decorations of Ceilings 200

ARCHITECTURAL CONSIDERATIONS.

In the Interior of Houses, what to be materially considered 203

ARCHITECTURAL CAUTIONS.

Faulty parts in the Interior of Houses that are to be avoided 204

DISSERTATION XXXIV.

The Science of Optics indispensably necessary to be known by the architect, to enable him to ascertain what portion of his design will appear, and what recede when his edifice is erected . . 206

DISSERTATION XXXV.

On Designing and Drawing the Elevations for a Country House 208

DISSERTATION XXXVI.

General Remarks on the external proportions of Houses 212

DISSERTATION XXXVII.

On the Apertures in an Elevation . . . 214

Page

DISSERTATION XXXVIII.

On the various descriptions and proportions of Windows 217
On the Origin of Glass 221
On Coloured or Stained Glass 222
On Painting on Glass . . . . . —

DISSERTATION XXXIX.

On the Ornaments of an Elevation . . . 223

DISSERTATION XL.

On Decorating an Elevation with the Orders . 225

CONSIDERATIONS.

On the Exterior of Houses, what to be materially considered 227

CAUTIONS.

The faulty parts in Elevations of Houses that are to be avoided 228

DISSERTATION XLI.

On Sections 231

DISSERTATION XLII.

On Painting and Decorating the Interior of a House with colours; their qualities and law of harmony considered 233

DISSERTATION XLIII.

The Model 237

DISSERTATION XLIV.

On Stables and Coach Houses 238

DISSERTATION XLV.

On the character and forms of Entrance Lodges 239

DISSERTATION XLVI.

On Ventilating Dwelling-Houses 240

DISSERTATION XLVII.

On Warming Dwelling-Houses. 243

ILLUSTRATIONS.

Page

PORTRAIT of the AUTHOR, to face the Title.

The Elementary Diagrams of Design and Exemplars of the various styles of Domestic Architecture displayed and defined, including the appropriate Furniture, Garden and Landscape-scenery of each 247

The Theory of Plans . . . . . —

PLATE I.

Elements of Design, first principle . . . 249

THEORY OF ELEVATIONS.

PLATE II.

Elements of Design, second principle . . 251

FINISHED ELEVATIONS.

PLATE III.

Elements of Design, third principle . . . 253

EXEMPLARS OF THE VARIOUS STYLES.

PLATES IV.—V.

A Cottage Ornée 256, 257

PLATE VI.

A Tudor Mansion—Henry the Seventh's style . 258

PLATES VII.—VIII.

A Tudor Manor-House—Henry the Eighth's style 259, 260

PLATES IX.—X.

A Tudor Hall—Elizabethan style . . 261, 262

PLATES XI.—XII.

A Tudor Suburban Residence . . 263, 264

PLATES XIII.—XIV.

A Tudor Cottage, Elizabethan . . . 265, 266

PLATES XV.—XVI.—XVII.

A Mansion in the Stuart style—James I. 267, 268, 269

PLATES XVIII.—XIX.

A Villa in the Florentine style . . . 270, 271

PLATES XX.—XXI.

A Chateau in the Flemish style . . 272, 273

PLATE XXII.

A Pompeian Suburban Villa . . . 274

Page

PLATES XXIII.—XXIV.

A Venetian Summer Residence . . 275, 276

PLATES XXV.—XXVI.

A Swiss Cottage 277, 278

PLATE XXVII.

A French Suburban Chateau . . . 279

PLATES XXVIII.—XXIX.—XXX.

An Egyptian Pavilion . . . 280, 281, 282

PLATES XXXI.—XXXII.—XXXIII.

A Grecian Villa 283, 284, 285

PLATES XXXIV.—XXXV.—XXXVI.

A Villa in the Roman style . . 286, 287, 288

PLATES XXXVII.—XXXVIII.

Anglo-Grecian Museum . . . 289, 290

PLATE XXXIX.

Anglo-Italian Villa 291

PLATES XL.—XLI.—XLII.

A Persian Pavilion . . . 292, 293, 294

PLATES XLIII.—XLIV.

A Chinese Casino 295, 296

PLATE XLV.

A Burmese Palatial Hall of Assembly . . 297

PLATE XLVI.

An Oriental Pavilion 298

PLATES XLVII.—XLVIII.

A Palatial building in the Morisco Spanish style 299, 300

PLATE XLIX.

A Norman Feudal Castle and Lancastrian Mansion 301

PLATE L.

A Plantagenet Castle—Edward the Third's style 302

PLATE LI.

Tudor Gate-House and Stuart Lodges . . 303

PLATE LII.

A Royal Palace, Palladian style . . . 304

Page

PLATE LIII.

Royal Palace Stables 305
Breaking-House . . . . . —
Riding-House . . . . . —

PLATE LIV.

Royal Park Entrance 306
Recapitulation . . . . . —
Observations on the extreme and intermediate situations of Rural Residences, the Architectural Character, Scenery, and Climate of each place considered 307

PLATE LV.

Situations Exemplified 307
On the variety of Climate in Great Britain, and the appropriate places of Residence for Invalids . 312
Glossary of Domestic Architectural Terms . . 315
Landscape Gardening, containing the Art of Laying out and Ornamenting the Grounds connected with a Country Mansion 319
Prefatory History 321
Preliminary Essay 324

PLATE LVI.

Principles of Laying out Grounds adjacent to a Country Mansion, in the Ancient style . . 329

Page

PLATE LVII.

Principles of Laying out Grounds around a Country Mansion, in the Modern style . . . 330

PLATE LVIII.

Pleasure Grounds, Park Plantations, and Decorative Sylvan Scenery 333

PLATE LIX.

Improvement of Grounds around a Nobleman's mansion 334

PLATE LX.

Exemplars of Flower Gardens . . . 335

PLATE LXI.

An Italian Garden, Orangery, and Hot-houses . 336

PLATE LXII.

A Dog-kennel 337

PLATE LXIII.

An Ice-house 338
A Bath . . . . . —
A Dairy . . . . . —
Conclusion 339
Glossary of Landscape-Gardening Terms . . 341

DOMESTIC ARCHITECTURE.

A SUCCINCT HISTORY

OF THE ORIGIN, PROGRESS, AND PERFECTION OF ARCHITECTURE.

"Tum variæ venere artes. Labor omnia vincit
Improbus, et duris urgens in rebus egestas."
VIRGIL. Georg. lib. i. 145.

Of the earliest state and progressive advancement of Domestic Architecture in the land of Shinar,* where, after the deluge, the first human habitations were erected, we have very little information. None of the edifices of these aboriginal people are now in existence: not even the walls which surrounded their cities can be traced, although we still find ingenious authors giving an elaborate history of building, from its first origin in the rude cot, or the cavern hollowed in the mountain's-side; and we have read the accounts of Pliny, perhaps, with more faith than they deserve, when he tells us who built the first houses. But in reference to Europe, we have more certain records. I purpose therefore—after noticing the origin of architecture in a general way, which was nearly the same in all countries—to commence by giving an account of the architecture in Britain, from its infancy down to the present period; and afterwards endeavour to trace its source from Egypt, a primitive nation, through Greece and Italy, considering it first in its rude state, then at an advanced period, and afterwards as embellished, showing to what perfection it at last arrived in those countries.

ORIGIN OF ARCHITECTURE.

The earliest houses that were built having perished, as we have observed, long before histories were written, such structures, therefore, cannot now be recorded or described. It is easy, however, to conceive, though impossible to know with certainty, how they arrived by degrees at their different stages of improvement; for we are aware that architecture must have owed its birth to necessity, as it owed its embellishments afterwards to luxury. Man's first care would naturally be directed to the discovery or construction of some kind of shelter against the inclemencies of the weather in that region in which he was placed; for as cold and heat in their extremes could not well be endured under the bare canopy of heaven, his best affections, no less than his natural wants, would prompt him to this. But the cave of the Troglodyte,† or the hut of the savage, are no more connected with

* See Genesis, x. 10.

† The Troglodytes were Egyptian shepherds, who lived on the shores of the Red Sea, from Berenice, southward of Thebes. (Wilkinson's Egypt, note, p. 473.) In the time of Strabo they lived in caves. (Strabo, Mela. i. 4 & 8.) Vanleb mentions one cave in the East sufficient to contain one thousand horsemen. Belzoni found some Troglodytes had departed from their caves, and were living in the passages of the tombs. "The walls and roof of their abode," says he, "are as black as a chimney, and their doorways inclosed up with mud, having a small aperture sufficient for a man to crawl through. Within this place the sheep are kept at night, and occasionally accompany their masters in their vocal concerts." (Belzoni's Researches in Egypt, vol. i. p. 281.)

science and forethought, than the den of the tiger, the lair of the wolf, or the more artful structures of the fowls of the air.

Subterraneous caverns, arbours, and grottos, formed by nature, we may naturally suppose were the first habitations for men in a primitive state, and in a warm climate. Such places were very common in the East, as we find by the sacred writers.* They abounded in Canaan;† and in Hindostan the like places are in use at the present day. Nature's own hand seems to have constructed those places for man in his barbarous state; and being destitute of better security, or without knowledge or means to erect huts, he would naturally resort thither and accommodate them to his purpose.‡

But these, though the first residences of mankind, when living in an uncivilized state, could not long be their only habitations, after they began to be formed into societies or tribes: and thus we find the ancient writers describe the huts of the Nomadians after their dispersion; at least the earliest recorded primitive village-residences of mankind, as being erected in groups, and composed of poles, formed of the branches of trees fixed in the ground, enclosing a circular space, and meeting at the top, the sloping sides being covered with bulrushes, straw, or skins. Mr. Buckingham, in his travels through Assyria, met with many such patriarchal tents.§

Those of the Nomadian Asiatic shepherds are exactly the wigwams of the aboriginal inhabitants of America, as described by a traveller through the woods of Canada:‖ so much is man the creature of the same instinct under similar circumstances. The primitive people we have above described all lived as herdsmen, or by hunting and fishing, and on the natural or spontaneous productions of the earth; but when agriculture became understood and practised, then we may imagine societies became more enlightened, and a different kind of habitations was introduced.

BRITISH ARCHITECTURE.

The summer habitations of the ancient Britons were similar to alcoves, very slight, and, like those of the Finlanders, consisted only of a few stakes driven into the ground, interwoven or wattled, in the form of wicker-work, and covered over with the boughs of trees.¶ The winter habitations of the Britons were caves sunk into the ground, formed and covered over with turf, rendered secure and warm by art, and served as a retreat in time of war. Of their dress we may

* Jeremiah, xlix. 16., and Isaiah. † Numbers, xiii. 19.

‡ The Cimmerians, noticed by Homer, he informs us, also lived in subterraneous abodes. (Homer Odys. xi.) Pliny places these people on the banks of the Avernus, and Festus represents them as inhabiting deep and gloomy dells, in the neighbourhood of Naples. We may certainly conceive that in an early and half-savage state of society, men might have preferred caves so large and commodious as these are represented to have been, to such hovels as they were then capable of erecting; and there are many instances on record of human beings, in considerable numbers, inhabiting such receptacles, such as the barbarous inhabitants of the north, and some of the semi-barbarians of the south, who have chosen to live underground.

In Malta, near the city of Valletta, are still shown the vestiges of a subterraneous city: for the extent of the galleries, and the regularity of the streets, almost entitle the place to this appellation. The rock is not only cut into spacious passages, but hollowed out into separate houses, with their different apartments, which seem to have been capable of containing a very considerable number of families. Such abodes, without doubt, must have been gloomy, but in a country like Malta, where the heat is intense, and the reflection from the chalky soil painful; where there is little verdure, and still less shade, gloom and coldness underground are perhaps preferable to glare and heat above.

§ A tent is a movable lodging, formed of cloth or skins spread over poles. Jabal, a son of Lamech, the Canaanite, was the inventor of such tents, that he might remove were he pleased, to feed his cattle. (Gen. iv. 20.) In such lodgings did Noah, Abraham, and other patriarchs, and the Machabites dwell, and to this day the wild Arabs, Tartars, and some of the Turks live in a kind of tent. Those of the Arabs are covered with black hair-cloth, but those of the pacific Turks, with white cloth. The great men, among both, have very magnificent tents, and some of the Turks most splendid trains and equipages, though living in tents. (Burchardt's Travels in Arabia.)

‖ Head's Diary. ¶ Tacit. de Morib. c. xlvi.

notice that the chiefs wore a party-coloured plaid, which descended from the waist to the middle of the leg: they wore, besides the plaid, chains of gold round their necks, and the women bracelets of the same metal. The common people had no other covering than the skins of wild beasts, and stained themselves from a plant called woad, to make their appearance more formidable in battle, while some painted on their bodies strange resemblances of hideous animals, and wore their long hair hanging down over their shoulders.* The winter habitations of the primitive Germans seem to have been precisely of the same character as those of the Britons, which are thus described by Tacitus: "Their custom," says he, "is to dig deep caverns or burrows in the ground, and cover them over with boughs of trees and turf, where they lay up their provisions, and dwell in winter for the sake of the warmth. Into these they retire also from their enemies, who may plunder the open country, but cannot discover their subterraneous recesses."†

The wattle-and-clay hut—formed by stakes driven into the ground, interwoven with wicker-work, and afterwards having the interstices and crevices filled with moss, daubed on the outside with clay, and the roof thatched with dried coarse grass, as a security against the weather—naturally followed. And in succession *pise-work*, and the cob-wall, formed of wet loam and straw,‡ having the roof thatched with bulrushes, were next introduced, although we may doubt as to the exact period assigned, or that it originated with Dexius, the son of Aulus Gellius, who, we are informed, first built them in that way. The story related by Pliny, of his having taken a martlet's nest for his model, may justly excite a smile.§

When Julius Cæsar invaded Britain, he was informed that the inhabitants of Kent, and of some other parts in the south, had at that time begun to build houses a little more substantial and convenient than those they had at first. "The country," says he, "abounds in houses, which very much resemble those of Gaul." ‖ The first step towards this improvement seems to have been that of daubing the wattled walls of their houses over with wet clay on both sides, for the purpose of making them more solid and warm. "The Germans used for their purpose a kind of pure, resplendent earth, of different colours, which had an appearance of rude painting at a distance;" ¶ and hence, perhaps, the custom of painting landscapes on the outside of the walls of houses had its origin; such are still to be seen in the Netherlands, and in some cantons in Switzerland. But the Gauls and Britons at this period preferred rather to whitewash the clay after it was dry, with white chalk; and instead of straw they thatched their houses with marsh-reeds or rushes, a much better security against the weather.

As the forests in Britain were at first numerous, the people next proceeded to form their walls principally of upright posts of wood, instead of stakes and wattles, but still of rude workmanship. This seems to have been the mode of building amongst them soon after they were subdued by the Romans. "The Britons," says Diodorus Siculus, (who was contemporary with Cæsar,) "dwell in cabins that are constructed of wood, covered with straw." ** Those ancient wooden houses of the Gauls and Britons, we are informed, were not at first square, but circular, with high tapering roofs, at the top or centre of which was an aperture for the admission of light, and the escape of the smoke—such are those of the Laplanders at the present day. Those of Gaul are thus described by Strabo: "They build their houses of wood, in the form of a circle, with lofty, tapering roofs."††

* Strutt's Habits and Customs of the Britons, vol. i. p. 34. † Tacit. de Morib. German. c. xvi.

‡ This is a common mode of building in Devonshire. § Pliny, lib. c. viii. ‖ Cæsar de Bel. Gal. lib. v. c. 12.

¶ The ancient Germans did not build cities, nor did they suffer their houses to join each other, either from fear of fire or from their unskilfulness in building. They wanted not either *parget* or mortar, for they understood not the use of stones and bricks; their houses were consequently built with timber, rough and unhewn, which they neither squared nor wrought into any form; their walls were diligently daubed or plastered over with a clear shining earth, on which they made the rude and barbarous tracings of coloured figures.—(Strutt's Habits and Customs of the Germans, vol. i. p. 36.)

** Diod. Sic. lib. v. c. 8. †† Strabo, lib. v. p. 197.

The foundations of some of the most magnificent of these circular houses belonging to the heads of the clans were of rough stone, of which there are some vestiges still remaining in Anglesea and other places.* It was, probably, in imitation of these wooden houses, that the most ancient stone edifices, of which there are still some remains in the western islands of Scotland, were built circular and have a large aperture at the top.† We find that when the Britons were invaded by the Romans, they had nothing amongst them answering to our ideas of a city or town; that is, a space laid out, and consisting of a number of contiguous houses, disposed into regular streets and courts. Their dwellings, like those of the ancient Germans, were all scattered about the country, though generally situated on the banks of some rivulet, for the sake of water; and on the skirt of some wood or forest, for the convenience of hunting, and pasture for their cattle.‡

As these inviting circumstances were more conspicuous in some parts of the country than in others, the chiefs of the clans in the end made choice of those places for their residence; and a great number of their friends, and such of their followers, as were freemen, for various reasons built their houses as near to them as they conveniently could. This naturally produced an ancient British town, one of which is described by Cæsar in the following terms:—"From the Cassi we learnt, that the town of Cassivelaunum (St. Albans) was at no great distance, a place defended by woods and marshes, in which very great numbers of men and cattle were collected.§ For what the Britons call a town, is a tract of woody country, surrounded by a vallum, mound, or high bank, and a ditch for the security of themselves and cattle against the incursions of their enemies."‖ Strabo observes, that "the forests of the Britons are their cities, for when they have cleared, and enclosed a very large circuit with felled trees, they build within it houses for themselves, and hovels for their cattle. These buildings are very slight, and not fitted for long duration, which they do not need, as they remove to open places in the woods at pleasure, whenever they require better food for their cattle, and which their wooden houses admit of.¶ The palaces of the British princes, (for they lived under a government,) were built it appears of the same materials, and on the same plan with the houses of

* Rowland, Mona. Antiq. p. 88-89. † Macpherson's Dissertation, p. 17.

‡ Tacit. de Morib. German. cap. 16. Vita Agric. c. xxi.

§ The Roman army approached, and Cassivelaunus, the British monarch, after a stout resistance, at length had his woody metropolis at Verulam entered, sacked, and burnt. B.

‖ Cæsar. de Bel. Gal. lib. v. vi. c. 21.

¶ "In certain districts of Cornwall, particularly on the uninclosed and uncultivated downs, are several dilapidated walls of circular buildings, which appear to have been the residence of a tribe, or class of people, who, protected by the adjoining fortification, formed a settlement there, when the more fertile and pleasant parts of the island were occupied by foreign usurpers. The foundations are all detached from each other, and consist of large stones, piled together without mortar; each hut measures from ten to twenty feet in diameter; has a doorway, with an upright stone or jamb on each side. There is no appearance of chimneys or windows; several banks, (or small and large enclosures) are remaining near the houses, and from them a sort of covered way, or guard-road, communicating with the fortress, which occupies the summit of a hill. Mr. King, and several other antiquarians are of opinion that the original British huts, especially those constructed with stone, were built in form of a cone."—(Dr. Borlase's History of Cornwall.)

'Thence by degrees the embryo town began,
As wants or habits formed its artless plan;
The increasing numbers part the chosen spot.
And each with rival toil adorns his lot;
Extends his little hut, and clears around
The obtruding thorns and brambles from the ground;
Brings from the shattered tree the ponderous beam,
With thatch of reeds, and rushes from the stream;
Constructs, with rude design, the simple shed,
From rains and tempests to protect his head.
The walls with bark, and pliant wattle weaves,
And spreads his easy couch of withered leaves."
(Knight's Progress of Civil Society.)

their subjects, and differed from them only in magnitude, in having a stone foundation, and in containing more apartments.*

The houses of the Britons in the next advanced state, were never more than one story high; while those of the commonalty were not divided, as in the present day, into several distinct apartments, but consisted of one large circular room or hall, with a fireplace in the middle; around which the whole family and visitants—men, women, and children, slept on the floor in one continued bed of straw or of rushes.† "The palace of the chief" says Dr. Whitaker, "where they lived in clans, was divided into several rooms."‡

ANGLO-ROMAN ARCHITECTURE.

The ornamental and useful science of architecture, in the next period of our history, had been greatly improved by the Romans, after their invasion of this country under Julius Cæsar, B. C. 55; but many examples of which were afterwards destroyed by the barbarous Anglo-Saxons. The following event will show the striking contrast then existing between the architecture in Britain and that in Rome. "When Caractacus, the primitive British monarch, who had been taken captive, and sent in triumph to Rome, was passing through its streets and saw the splendid palaces, he expressed his astonishment that people possessing such magnificent edifices at home, should envy him his humble cottage in Britain."§ The first colony of Romans, on their settlement in Britain, was planted at Camalodunum, (Colchester,) as early as the fiftieth year of the Christian era, and when it was destroyed, only eleven years afterwards, by the Britons, in revenge for the cruel treatment of Boadicea, Queen of the Iceni, in Suffolk, it was then a large and well-built town, embellished with statues, pagan temples, theatres, baths, and other public structures.‖ From many circumstances, however, it appears that these buildings, like the early provincial theatres of the Romans, from which they had been designed, were chiefly of wood—this material being then abundant in Britain—till the time of Julius Agricola, who firmly established the dominion of the Romans in Britain, and governed it during the reigns of Vespasian, Titus, and Domitian.

Architecture, from the time of Agricola,¶ A.D. 80, when he had subdued the whole or the

* Ossian's Poems, vol. ii. p. 36.

† Girald. Cambren. Descrip. Camb. c. x.

‡ The Britons were divided into clans or families, each acknowledging the authority of its proper regulars or lords. The number of clients in each was different in different clans, naturally greater or lesser according to the wealth of the chiefs; the retainer always attended the car of his lord to war, was always settled about his habitation in peace. (lib. i. p. 120. Diodorus, p. 352.) This habitation was sometimes fixed conspicuously on the summit of a hill, appearing over the tops of the surrounding trees, and commanding all the neighbouring country, (Ossian, vol. i. p. 157,) but more commonly it was placed in the hollow of a valley, either upon the margin of one stream or the confluence of two, for the convenience of water, and security from winds. (Ossian, vol. i. p. 99. 129.) In both cases the followers lived immediately about the person of the chief, in little booths along the windings of the valley, the latter being always within reach of the usual signals from the house; the striking of the shield or blowing the horn of the lord. (Ossian, vol. i. p. 36, and vol. ii. p. 7, &c.) Further we are here informed, that the lord's mansion was constructed of wood, on a foundation of stone; was of one story high; and the plan composed of a large oblong or square court. A considerable portion of it was taken up by the apartments of such as were retained immediately in the service of the senior; and the rest, which were more particularly his own habitation, consisted of one great and several little rooms. In the great one were his armoury, the weapons of his fathers, the gifts of his friends, and spoils of enemies disposed in order along the walls. And here he sat with his children and guests about him, listening to the song and the harp of his bards and daughters, and drinking out of cups made of sea-shell.—(Dr. Whitaker's History of Manchester.)

§ Henry's History of Great Britain.

‖ London at this time had also become a populous and opulent mart.—(Dr. Lingard.)

¶ Agricola adopted the best mode of conquering the country, by admonishing the natives, both in public and private; by advising and assisting them to build temples, forums, and houses, and rewarding the industrious and punishing the idle. He also took care to have the children of the chief inhabitants instructed in the principles of art; and before he quitted this country, it is remarked by Tacitus, that the Britons not merely imitated the Romans in their porticos, baths, and luxurious feasts, but also in their enervating vices.—(Tacit. Vita Agricolæ, sec. xxi.)

greater part of this island, up to the middle of the fourth century, as we are informed, flourished greatly in this country. The same taste for the convenient, substantial, and ornamental buildings, which had long prevailed in the Roman provinces, was now introduced into Britian. The country, therefore, from this time abounded with well-built towns, forts, and stations. The Anglo-Romans, however, it is supposed, did not erect many stone edifices in Britain; for if they had, it is not probable the stones would have perished or been applied to other purposes. Factitious bricks and tiles were generally used, which are still to be met with at their principal stations, as at St. Albans, Castor, near Yarmouth, Colchester, and Exeter, where they had brick-kilns. This spirit of building, which was first introduced and encouraged by the Romans, so much improved the taste and increased the number of British artists, that in the third century this island became celebrated in that respect. Even the Emperor Constantius, father of Constantine the Great, when he rebuilt the city of Autun, in Gaul, A.D. 296, was chiefly furnished with workmen from Britain, which now very much abounded with the best artificers.

Not long after this enlightened period, architecture and the accompanying arts, which had been brought from Rome, began to decline; and after the final departure of the Romans from Britain, A.D. 448,* the Roman style was abandoned, and immediately succeeded by that called Saxon, or rather Saxo-Roman. Some of the private villas and public edifices of the Romans were so well built and cemented, that they might have resisted all the ravages of time, and remained to this very day, had they not been wilfully destroyed by internal commotions.† The Romans had now finally left Britain, which was again threatened by a neighbouring state. In this emergency the Saxons were applied to for aid, and at last became treacherously masters of the island. In the course of the long-continued wars against the unhappy natives, those beautiful buildings were razed to the ground; for it seems to have been a maxim with these ferocious conquerors to destroy instead of preserving all the towns which they took from their enemies.‡

Mr. Lysons has given us, in a full and ample manner, an interesting account of an Anglo-Roman villa, at Woodchester, in Gloucestershire, which appears to have been one of the largest and most magnificent in Britain; he conjectures it to have been the residence of the proprietor at least, if not the governor, of that part of the province—nay, it might even have been designed for the emperor Hadrian himself, during his residence in this country. From the plans shown, it appears that the foundations extended, at least, four hundred and fifty feet in one direction, by about two hundred and seventy-five in another. Two great open courts, or *atria*, ran horizontally through the middle of the building, surrounded with various apartments or rooms of different dimensions. The front great court seems to answer to the *Peristylium* of Vitruvius, and was probably surrounded with a colonnade; though only loose fragments of columns were found, and none of their bases could be discovered, so as to ascertain their situation. On the east and west sides of this court were considerable ranges of buildings; in the eastern wing the remains of the *Laconicum*, (hot air-bath,) are still sufficient to indicate its original

* The Emperor Constantius, father of Constantine, and colleague of the persecuting Galerius, dying in Britain, Constantine, who had embraced Christianity, was chosen the succeeding emperor; the Romans therefore invested him with the purple; the imperial city now being threatened with an invasion from foreign barbarians, he immediately left Britain, and withdrew all his Roman legions to protect the seat of his new empire, at which period a great revolution in architecture, and the arts succeeded.—(Vide Lingard's History of England.)

† Castell's Villas of the Ancients.

‡ The foundation of many of these villas, with entire ground-plans, have been at various times discovered in England at Roman stations. Some even by the ploughshare have been laid open to our view, and presented the most beautiful mosaic and tesselated pavements. Ground plans of villas, and thermæ, or warm-baths, have also been discovered in various counties of England, some lately in South Street, Exeter. See a plate of this description in the Gentleman's Magazine for July, 1834, p. 41, by the author of this work.

use. The room contiguous to it, on the eastern side, seems to have been an *Apodyterium* (dressing room,) and the one most distant, on the west side, a cold bath, as it was a very common practice among the Romans to use a cold bath after the *Sudatorium*. Most of the rooms on the west side, it is very probable, were appropriated to the use of servants, as they do not appear to have had tesselated pavements or other decorations. On the north side of the great court were three large rooms, which, from the fragments of statues, marbles, and columns found there, appear to have been highly decorated, and from their size were probably either *Œci* (saloons), or *Exedræ* (conversation rooms.)

The postern, or inner court, had galleries on the north, east, and west sides; that on the south side has an elegant tesselated pavement, and a fragment of one remains in that part of the east side. The galleries were clearly what the Romans called *Crypto-porticus*, (passages,) and the area inclosed within them might have been the *Atrium*, (or hall.) The room of which the great tesselated pavement remains, was, no doubt, the *Cavædium*, or *Tetrastylos* of Vitruvius, and must have been extremely magnificent, as there is great reason to imagine, from the elegance of the floor, that the ceiling and other parts of the room were richly decorated. The walls on the west side of the *Cavædium* and *Crypto-porticus*, are probably remains of the *Triclinia Hyberna*, (winter supper-rooms) and baths, as most of them have subterraneous flues, for the purpose of introducing heat, and their situation corresponds with that which Vitruvius assigns for those apartments. The rooms on the eastern side of the *Crypto-porticus* were probably warmed by the *Hypocaust*, these occupy the situation assigned by Vitruvius for the *Triclinia* of the spring and autumn.*

The design of one of the pavements discovered among the remains, exhibits five octagonal compartments containing figures on a white ground, surrounded by a double labyrinth, just immediately within which, on the north side, is a scroll of flowers, having a vase in the centre. In the compartments of the north, west, and south corners are fragments of Bacchanalian figures; the compartment of the south-west corner is entire, and contains figures of two boys, holding up a basket of fruit and leaves, with the words "BONUM EVENTUM BENE COLITE," inscribed under them.

Several fragments of statues, and red glazed pottery, various pieces of stags' horns, broken glass, and a number of coins were found in the ruins. Among the coins was one of Hadrian, and another of Lucilla, of large brass; also a considerable quantity of small brass of the Lower Empire, chiefly Tetricus, the younger, Victorinus, Probus, Constantinus, Aug. Constantius, sen. et jun., Magnantius, and Valens. A design of iron much corroded, two spears of the same metal, a small brass hatchet, several brass fibulæ, a tray apparently of hardened clay, various pieces both of brass and bone, and some other antiquities have also been found among the remains.—*Lyson's Gloucestershire.*

ANGLO-SAXON ARCHITECTURE.

The Saxons, on their arrival in this island, A. D. 449, were almost totally ignorant of the arts, and like all the other barbarous tribes of Germany, had been accustomed to live in wretched hovels, huts, sheds, and tents built of wood; and, from their being involved in perpetual warfare, were habitually

* Vitruvius, lib. vi. c. 7, states that a villa should have a Triclinium, or dining-room, for the summer season, and another for the winter: the first should be exposed to the north as being more cool and temperate at the summer solstice; the second should face the south-west, to have the advantage of the declining sun, to render it warm and pleasant in the afternoon. To the same aspect also should be the Pinacotheca, (picture-room,) as well as the embroidering and painting-rooms.

given up to a roaming life. "They even despised," say the historians,* "the peaceful pursuits of science." And although the houses left in this country, on the departure of the Romans, presented excellent models; yet the Saxons did not much improve in the knowledge of architecture for two hundred years after their arrival.† During that long interval, brick buildings may be said to have been much neglected. Their houses, we are informed, resembled those of the other northern tribes of that early age: their walls were constructed of wood, and some with merely a rough foundation of loose stones; the roofs were formed of the branches of trees, covered with straw or bulrushes, and an aperture in the centre served to transmit the smoke,‡ evidently very similar to the cabins of the Irish peasantry in the present day.§ The habitation which St. Cuthbert, the Saxon monk, about this time built for himself in the Isle of Lindisfarne, was very circumscribed; for it consisted of only two separate rooms, surrounded by a wall two yards high, built with rough stone and turf, and the rooms partly excavated in the rock.‖ Even the palace of the Saxon king of Northumbria, during the heptarchy, was nothing more than a large hall, with two opposite apertures for doors, and the hearth in the middle of the floor.¶

If architecture was thus neglected, and became so very imperfect in England so soon after the Romans had left it, we may conclude that it was not at this time in a very flourishing state in the neighbouring countries. This, in fact, appears to have been the case; for the little that had been previously learnt, was almost lost among the posterity of the ancient Britons, after they had been oppressed by the Saxons, and compelled to retire to the mountains of Wales. Even here, the chief palace of the kings of Wales, where the nobility and wise men assembled for making laws, was, at this period, only of wood, and called the White Palace, because the walls of it were woven with white wands, which had the bark peeled off.** By the laws of Wales, whoever burnt or destroyed the king's hall or palace was obliged to pay one pound and eight pence, besides one hundred and twenty pence for each of the adjoining buildings, which were eight in number, namely, the dormitory, the kitchen, the chapel, the granary, the bake-house, the store-house, the stable, and the dog-house.†† From hence, it appears, that a royal residence in Wales, without its offices, when these laws were made, was valued at five pounds and eight pence of the money of that age, equal in quantity of silver to sixteen pounds of our money, and in efficacy to one hundred and sixty. This is certainly a sufficient proof of the meanness of those buildings. Even the structures of defence in Wales, which these people built for the security of the country after it became united to England as a kingdom, appear to have been formed only of wood, from the fact that the laws required the king's vassals to come to the building of these structures with no other tools than an axe. ‡‡

Although Olaus Magnus§§ furnishes us with a brief account of the houses of the northern nations, he does not define the periods when the different kinds were introduced or became prevalent. He divides them into five classes, "pyramidales, cuneatæ, arcuales, rotundæ, et quadratæ," the sides and roofs of all of which were solely or chiefly composed of timber; but walls of stone were sometimes combined with the wood. The houses which he denominates "cuneatæ" and which were the most general, were covered, he says, "corticibus betulæ, vel tegulis, vel fissilibus scandulis e pino, vel

* Henry's History of Great Britain. Sharon Turner's History of the Anglo-Saxons.
† Chiver. Antiq. Germ. p. 86. ‡ Bede, lib. iii. c. 10.
§ In the East the same mode prevails among the Cingalese in their villages; some houses being built round and thatched, others oblong, and standing on a stone foundation about three feet high, whereon is formed a terrace around the house.—(Travels in the East.)
‖ Bede, p. 243. 263. ¶ Bede, lib. ii. c. 13. ** Leges Wallicæ.
†† Barrington in Archæologia, p. 278. ‡‡ Leges Wallicæ, p. 167.
§§ Hist. de Gent. Sept. Romæ, 1555, p. 409.

abiete, vel quercu, vel fago confectis." But with some of these materials, he informs us, a layer of clods of earth was occasionally intermixed, and such, we have reason to believe, was the general class of dwellings among the Anglo-Saxons for some time after their settlement in this island: even the richer orders of society had certainly very mean accommodation.

The art of making glass had been introduced into England in the seventh century, by Benedict Biscop; but this useful article was so much neglected at this time, and for many years afterwards, that no private houses had glass windows, but merely transparent shells, talc, or oiled paper: for some people, trellis or lattice-work served their purpose.* In fact, several of our ancient historians agree that the Anglo-Saxon nobility (Thanes) at a later period, had no taste for magnificent buildings,† but spent their whole revenues in mean, low, and inconvenient houses,‡ which arose from the unsettled state of the country, and the continual fear of incursions from the marauding Danes, who made it a constant practice to burn all the places they came to.§ We have a curious account of a Saxon village, and of the people at this early period, given by way of contrast, in Dr. Whitaker's History of Whalley. "Could," says he, "a curious observer of the present day carry himself nineteen centuries back, and ranging the summit of Pendle, survey the forked vale of Calder on one side, and the bolder margins of the Ribble and Hadder on the other, instead of populous towns and villages,—the castle, the old tower-built house, the elegant modern mansion, the artificial plantation, the enclosed park and pleasure-ground—instead of uninterrupted enclosures which have driven sterility almost to the summit of the fells, how great must then have been the contrast, when ranging either at a distance, or immediately beneath his eye, to have seen vast tracts of forest-ground, stagnating with bog, and darkened with native woods, where the wild ox and the roe, the stag and the wolf had scarcely learned the supremacy of man! Then, directing his view to the intermediate space and the windings of the valleys or the expanse of the plain beneath, he could only have distinguished a few insulated patches of culture, each with a village of wretched cabins, among which would still be remarked one rude mansion of wood, scarcely equal in comfort to a modern cottage, yet rising proudly eminent above the rest, where the Saxon lord, surrounded by his faithful retainers, enjoyed a rude and solitary independence, owning no superior but his sovereign."‖

When Alfred the Great came to the throne, in the ninth century, says the Saxon Chronicle, and paid a visit to Rome, he became enlightened, and soon formed the liberal design of adorning his dominions in certain districts with more elegant structures. But to accomplish this, he was obliged to bring many of his artizans from foreign countries, such as masons, carpenters, glaziers, and painters.¶ Now, though we find that some buildings of more substantial materials had been erected during this reign, still, even the city of London, which he rebuilt, was actually constructed of the same fragile materials as those which had been employed by his predecessors;** and though he encouraged the arts and sciences, built several palaces, and founded the university of Oxford, yet those very buildings, strange as it may appear, were actually constructed of wood and covered with straw.††

During the time of the Saxon heptarchy, however, we find that some edifices were, in the end,

* Anderson's Hist. of Commerce, vol. i. p. 90.—Britton's Antiquities. Turner's Anglo-Saxon History.

† Some of the houses of the better sort were faced at the corners with stones or bricks, with which the arches of their windows and doors were also ornamented, but which were by no means used as a common material.

‡ Wm. Malms. i. 3; J. Rossi, p. 106. § Lingard's Hist. of the Anglo-Saxons. ‖ Hist. of Whalley, p. 133.

¶ Asser de Ælfridi Rebus Sartis, p. 20.—(William of Malmesbury.)

** It was the practice at this time to build town-houses with wood.

†† A. Wood's Hist. of the University of Oxon. p. 57.

erected in stone by the monkish builders, who, be it remembered, were the only architects of those days. But these structures were of the ecclesiastical kind, and such buildings formed the style now called Saxon,* which, from its similarity in parts to the worst Roman, may fairly warrant us in concluding that those people designed them from the recollections of the edifices of their predecessors, or perhaps after the destruction of those edifices by the conflicting parties. The elements of this style (Saxon) are heavy, round columns, and semicircular arches—bad resemblances of the Doric and Tuscan orders, from which are seen to spring round, but sometimes plain, and at others moulded archivaults.

ANGLO-NORMAN ARCHITECTURE.

At the Conquest, A. D. 1066, after the Anglo-Saxon monarchy was overthrown, a new era in architecture appeared in England, brought in by the conqueror and his followers from Normandy, though originating in Lombardy, which spread, and at last became general throughout these dominions, under the character of castles, which we find were erected under the following policy:—William, to secure himself more firmly in his new dominions, a few years after the battle of Hastings,† bestowed nearly all the lands in this realm upon his Norman followers, on conditions of military services, granting them the title of baron, and a licence to erect on their baronies fortified castles; which buildings became their residence, as well as the regular fortress of the manor: and thus the lives and fortunes of the vassals were held in dependence upon the uncontrolled wills of these potent barons. For the better appropriation of those captured and forfeited lands, a survey was made throughout England, in 1085, and registered in Doomsday Book. After this, the lands were divided into distinct baronies, each barony producing an annual revenue of £20, called a knight's fee, every holder of which domain was bound personally to serve the king, with his vassals at home, and himself to guard the conqueror's possessions abroad, at his own expense, for forty days in each year, providing himself with a horse and the requisite arms and accoutrements for the purpose; at the termination of that period he was at liberty to return home. What is called the feudal system was then introduced and established in England, and calculating the number of knight's fees at 60,000, the king was thus at all times enabled to command an immense effective body of cavalry for any emergency.‡

Hence the more substantial castle-buildings of stone, having now become necessary, were adopted§—many of which exist to this day, frowning in awful grandeur from the mountain's brow, attest-

* Benedict Biscop, a Christian Saxon, Wilfred, Bishop of York, and Theodore, Archbishop of Canterbury, living about the middle of the seventh century, respectively visited Rome, and other foreign cities, for the purpose of collecting books, pictures, statues, &c. and engaging builders, and other artizans, to visit England.—(William of Malmsbury.)

† The battle of Hastings was fought in 1066, between William of Normandy and Harold the English king. William, on his landing in this country, had determined to win a crown or lose his life; but he proved successful. In this conflict both the English and the French historians agree that not only Harold and his brother lost their lives, but with them at that time perished all the nobility of the South of England, and whose lands fell into the possession of the conqueror.—(Rapin and Harrison's History of England.)

‡ The feudal system inculcated a high sense of honour and military pride, but admitted only two ranks of society—the potent barons and their vassals, who were chiefly employed in cultivating the lands of the manor, which they held under certain productive tenures, and rendering suit and service to their lords on all occasions. It is probable that the towns near which the ancient castles are frequently to be found, were at first formed by the resort of the vassals of the feudal lords, with their families and property, as near to the walls as possible. The only trade then carried on was by means of periodical fairs.—(Holingshed's Chronicles.)

§ Theophrastus, quoted by Pliny, attributes the first use and digging of stones from the quarry to Cadmus, grandson to Agenor, king of Tyre---(Pliny's Letters.) Bricks, which were in use from the earliest ages, being mentioned in Holy writ, would no doubt have continued in use, had not nature at last discovered, to those who dug for that poor material, her mines of freestone and marble, which then promised a longer duration; and on the discovery of stone men naturally conceived the ideas of nobler and more magnificent structures.

ing the strength of their masonry, and bringing forcibly to mind the absolute power which was once exercised within their massy walls by the early barons. As examples of castles of the first era now remaining, those of Castleton in Derbyshire, Conisburgh in Yorkshire, and Hedingham in Sussex, may be noticed as proudly pre-eminent, and seeming to defy the hand of time, which sooner or later lays all human fabrics in the dust.

"Sad are the ruthless ravages of time!—
The bulwark'd turret,—frowning and sublime,
Now totters to its basis, and displays
A venerable wreck of other days!"
(Wanderings of Memory.)

The sites which the Norman barons selected for these castles were, as in their own country, such as they deemed most impregnable or eligible for the purpose of protection and defence—that of some lofty eminence, commanding an extensive view of the domain around it, and in the immediate vicinity of their vassals—sometimes upon a peak, on the high brow of a precipitous cliff, near the sea, or some majestic river, or on the summit of a headland. But where the locality of the barony did not possess either, then an artificial mount was thrown up for the purpose, many of which are still in existence.* The general character of the castle may be described as follows:—A broad deep moat, which was always dug round the walls of the area of the part destined for the fortress, and if the site, as we have just observed, was not sufficiently elevated and precipitous, the earth excavated from thence was employed to form the mount upon which the castle was to be erected. These edifices were from four to five stories high, and in their plan were generally quadrangular, though sometimes circular, and at others polygonal, and composed of prodigiously thick walls,† with circular battlemented and machicolated towers at the angles, rising above the summit of the main building which joined them; they were battlemented on the top, and had loop-holes in the small towers to admit light to the stairs, and were pierced with oilets *(œillets)* or cross-windows for discharging arrows at those who might hostilely approach its walls. In the middle of the castle was a massy round tower, seen rising majestically above the outer buildings, and commanding a view of the country, which was called the *keep;* and around this tower, circumscribed by the outer walls, was the area, or court-yard. The ground-floor of the keep was without light, and was made the dungeon (donjon) for the prisoners. The second story formed a large vestibule for the guards and attendants of the baron, and contained the principal entrance to the upper part of the castle, which entrance was ascended by a flight of stone steps from the area. The third story was devoted to the state apartments, and the upper one for domestic accommodation.‡

The outer court, or ballium, was surrounded by a rampart or thick dwarf wall, with a cranulated or battlemented top, and had flanking towers at different distances along the parapetted sides. The entrance-gateway had two large circular towers, one on each side, with a portcullis and drawbridge that communicated across the moat; which bridge was drawn up every night and let down

* At Plympton, near Plymouth, in Devonshire, is an artificial mount of this description, on which are the ruins of a fortified castle. (B.)

† The materials of which castles were composed varied much, according to the strata of the country where they stood. Walls of the thickness of twenty feet were faced only with hewn stone; the intermediate part was composed of pebbles, rubble stone, or flint, imbedded in a mass of fluid mortar, which acquired by time such an induration as scarcely to be separated by any possible means. Upon the sea-coast, squared flints were used for the external walls; and in countries which produced the better kind of stone, regular masonry was not spared. (Dallaway's Observations on Architecture.)

‡ King's History of Castles.—(See Archæologia.)

in the morning by the warder or porter. The bridge had also an external defence, called the barbican, or advance-work, with bastions, a place where to watch the approach of an enemy.* The chief dependence for strength in the feudal castles seems to have been in the height and thickness of the walls, and the breadth of the surrounding ditches; but where it was impossible to obtain the latter, machicolations, or invisible openings, were formed in the projecting corbeled cornice, or parapet, of the towers; a contrivance from which to discharge missiles on the head of an assaulting enemy. It was used in its boldest form in gateways; that of Lancaster Castle, (see Vetusta Monumenta,) was retained from being a picturesque ornament, long after it had ceased to be of use. This tower, which served always as a refuge at the last extremity, generally formed one of the most important features in the feudal castles.†

These fierce and despotic Norman barons, at last, greatly oppressed the people from one end of the nation to the other by their feudal exactions. In the reign of Stephen, they had erected since their arrival in this country, says William of Malmsbury, 1500 strongholds, by which they were enabled to overawe the monarchy. They consequently took advantage of the unsettled state of the kingdom, which, some time after the death of William, arose among his successors, and thus excited feuds in the nation for the purpose of reducing the prerogative of the throne. Even the dignitaries of the church began to assume to themselves a military power, by building castles as well as cranalating the parapet-walls of their churches, which gave those fanes more the appearance of temples erected to Mars than to the God of the universe. Alexander, Bishop of Lincoln, and Roger of Salisbury, were among this number of prelates.‡ Henry II. (Plantagenet,) immediat ly on his accession to the throne, after the extinction of the Norman line, being sensible of the danger and disadvantages which attended the unlimited building of fortified castles, which had greatly increased under his predecessor, Stephen, enacted a law, ordering many of these threatening edifices to be demolished, and prohibiting the building of others, without an express licence from the king, called "licentia crenellare." Those, however, that rose up under his reign were of greater splendour and dimensions than had hitherto appeared, but had not so much of the military character, as the present magnificent structures at Rochester§ and Norwich; to which may be added Kenilworth and Castle Rising,—the latter, a fine specimen, containing all the beautiful, rich, and elaborate details of interlacing arches, zig-zag ornaments, beak-heads, and billet-mouldings of the last style of Norman architecture.

After this period, and when the nation had become more settled, the barons who inhabited these castles began to relax, and to desire a more cheerful and comfortable habitation. The keep, in the centre of the castle, was now either much enlarged or altogether relinquished as a place of defence, except in times of siege; while more convenient apartments were sometimes erected in the entrance-

* Grose's Antiquities.

† Although the castles of the Anglo-Norman barons of this period were very superior to the residences of their Anglo-predecessors, the Thanes, yet the houses of men of eminence and of the burgesses in cities and large towns, were very little improved in their design or construction; even in the city of London, all the houses of the mechanics and shop-keepers still remained of wood, and covered with straw or reeds, as they had been in the time of the Anglo-Saxons, and so continued up to the end of the twelfth century. (Stowe's Survey of London, vol. i. p. 69.)

‡ Roger of Salisbury, at this time, built a military castle for himself at Devizes in Wiltshire.

§ The castle at Rochester, built by Gundulf, a Norman ecclesiastic, was the first castle that experienced a change from the round to the square form, though not the first that had its windows ornamented with small round pillars and zig-zag architraves, which abound there; and in the fine old church near it, built by the same Catholic prelate, who was a celebrated architect in his day. In those castles the windows, which were always narrow, were sometimes divided by piers and small pillars, into two or more divisions, within round-headed arches, enriched with zig-zag ornaments, an enrichment exclusively of Norman origin.—(Ducral's Norman Antiq.)

tower over the gateway, which led to the inner ballium, or court-yard. Thus, at Tonbridge castle—this part of which is referred by Mr. King to the end of the twelfth century—there is a room, twenty-eight feet by nineteen, on each side of the gateway; another over these, of the same dimensions, with an intermediate room above the entrance, and one large apartment on a second floor, occupying the same space, and intended for state. The windows in this class of castles were still little better than loop-holes in the basement story, but in the upper rooms they were often large, with several divisions of mullions, and beautifully ornamented, though generally looking inwards to the court-yard. Edward I.,* however, afterwards introduced a more splendid and convenient style of castles, less frowning, and having more cheerful and habitable rooms, with towers, each containing a staircase, that led to and communicated with the apartments above; in the end polygonal bay-windows were built in the external or outer elevations; those windows faced the country, and commanded various views. Borston castle, on the borders of Buckinghamshire, is a good example of this change.

As a general character we may observe, that the first castles were massy, square, lofty towers, strengthened at the four angles by flat thin projecting buttresses. The second order were quadrangular edifices, inclosing a court, with massy walls, but not so lofty as the others, and had circular towers at the four angles, which towers rose higher than the other parts of the edifice: they also had loop-holes, or upright slips of windows. The third were also quadrangular, and had bold square towers at the angles, sometimes placed diagonally, with oilet-holes, or cross loop-hole windows, from which to discharge arrows. A large round keep-tower was now erected in the middle of the inner court, which rose with imposing grandeur, and frowned defiance on all around. The roofs were flat and concealed, covered with lead, and surrounded with battlemented parapets.†

In the course of time, however, all these divisions and forms of construction peculiar to a regulated castle, as deemed necessary at first by the Anglo-Normans, were, on account of the discovery of gunpowder and the invention of cannon, no longer available as a means of positive resistance. Therefore, wherever such structures are now erected, as sometimes happens in the present day, in the most inconsistent and inappropriate sites, where even there is high ground at the back overlooking the castle, it is evidently a misapplication of style and character. Of the baronial castles which remain, and are still inhabited by puissant lords and noble families, the most remarkable are those of Arundel, Sussex; Belvoir, Leicestershire; Berkeley, Gloucestershire; Alnwick, Northumberland; Lumley, Durham; Powderham, Devonshire; Raby, Warwickshire; and that of Warwick. Of this last, so distinguished in story through Guy Earl of Warwick, Jago pleasingly descants:—

> "Now Warwick claims the song; supremely fair
> In this fair realm, conspicuous raised to view
> On the firm rock, a beauteous eminence
> For health and pleasure formed. Full to the south
> A stately range of high embattled walls
> And lofty towers and precipices vast,
> Its grandeur, worth, and ancient pomp confess."

* From the period of the conquest till the reign of Edward I., the dwellings of the kings and the higher order of nobility were completely castellated.—(Henry's History of England.)

† We have a very beautiful and poetical description of an ancient castle given by Mr. Howitt, in his "Traditions of the most Ancient Times," vol. i. p. 283.

PLANTAGENET CASTLE-PALACE.

The next and most important change of architecture in England was that of the castle-palace—a gorgeous style of composition in building—which was introduced in the fourteenth century,* by William of Wyckham, in the royal palace of Windsor, during the reign of his patron, Edward III. After the accession of William the Conqueror, the dwellings of princes and nobles, as we have shown, were regular fortresses, then rendered necessary for their personal safety, and for maintaining that system of tyranny and oppression which they exercised over their conquered subjects and enslaved vassals. The monarchs, however, having afterwards obtained more permanent security on the throne, and the nobles being safe in their landed possessions, they now began to build for the arrangement of domestic luxury and splendid hospitality. When defence became unnecessary, a different form of plan was essential; the mere fortress was abolished, and the magnificent castle-palace arose in its place.

The architectural mode here observed was first, that of dividing the edifice into two courts, called the upper and lower quadrangles, which were separated by the keep, or round tower; next, in having all the habitable rooms placed about a quadrangle, like our colleges; the side-buildings being connected together. The second was the introduction of square projecting towers and turrets, dividing the elevations at regular distances, but rising above them, like so many watch-towers, with bold corbelled cornices, within range of each other, and the whole being embattled, produced a most majestic effect. The windows now opened towards the country as well as towards the quadrangle, and were of an increased size, placed with regularity in the elevations, having upright mullions, and cross transoms, and formed in the low-pointed obtuse style of the Gothic arch, instead of the previous circular-headed Norman. The intermediate buildings between the towers formed three stories; that of the towers, four. The outworks around the palace consisted of a wide, raised terrace, inclosed with a low, inclined breast-wall, with bastions at the angles. The castle was, however, still surrounded by a moat and draw-bridge at the portal or great gate of entrance, which was defended by a portcullis, and flanked on each side by strong square towers, as in the more ancient castles of the middle period. In this style, which was both sublime and majestic, Edward III. wholly remodelled the kingly palace at Windsor.†

* Wyckham was Bishop of Winchester, but then it must be remembered, that during the middle ages there were no architects but what were either monks or ecclesiastics, as all the learning was confined to the monasteries.—(Lingard's History of England.)

Wyckham, as architect, was paid by the king one shilling daily, as his salary, during its progress, for devising and directing; and three shillings a week for his clerk of the works. To obtain artizans (which at this time were scarce) the king issued writs to the sheriffs of several counties, directing them, under a penalty of one hundred pounds, to provide a certain number of workmen, and send them to Windsor within ten days, to be employed at the king's wages as long as was necessary. And because divers of these workmen did afterwards clandestinely leave Windsor, and were entertained by other persons upon greater wages, to the king's great damage, and manifest standing of his work, the sheriffs were ordered to make proclamation, that those persons who should presume to employ any of the fugitive artizans should be dispossessed of all their property. The sheriffs were also directed to arrest the runaways, and commit them to Newgate.—(Holingshed's Chronicles.)

† Windsor Castle, the magnificent residence of the British sovereigns, is supposed to have been originally founded by William the Conqueror, in the beginning of his reign. His son, Henry I., added much to it, and surrounded the whole with a strong wall. Edward III., of the line of the Plantagenets, was born here, who, after coming to the throne, rebuilt it in an entirely new style of domestic architecture, under William of Wyckham, in which style it now appears, with the exception of some renovations made from time to time, and the late extensive additions by Sir Jeffrey Wyattville, but who, to his credit, has closely followed Wyckham's style. (Moule's History of Berkshire.)

From the summit of this palace is seen a combination of the most interesting views in England: the immense variety of objects included within the sphere of vision from this spot excites the most pleasing sensations;—the windings of the Thames through a wide extent of country; the scenery of the forest; the venerable groves; the busy hamlets; the variegated fields; the crowded towns, and all the variety of elegant mansions, embosomed in wood, and tastefully situated on the borders of the river, mingle in the landscape, and compose a picture which the luxuriant pencil of the most fertile imagination must fail to delineate.—(Brayley's History of Windsor Castle.)

PLANTAGENET CASTLE-MANSIONS.

After the palace at Windsor had been changed into a new style of domestic architecture, by Edward III., it soon became an object of imitation among the different branches of the nobles and prelates throughout England; and from this prototype was produced the magnificent mansions of Spafford and Naworth, in Cumberland, and to these venerable mansions again succeeded, in the following reigns, that of Knowle and Cowdry, the castellated and turretted edifices of Bolton Abbey, in Yorkshire, and the more superb pile of Alnwick, and afterwards that of Hirst-monçeaux, in Sussex.

In the reign of Henry VI. the towers at the gateways were battlemented, but polygonal and lofty; that of Oxburgh-hall, in Norfolk, being six stories high. The tower of Tattershall castle, in Lincolnshire, is both battlemented and machicolated. The architectural ornaments in these castellated mansions now became more generally adopted, as may be seen at Castor-hall, in Norfolk, where the doorways and windows are finished in accordance with the enriched and grotesque style of the age; in connexion with which may be noticed another remarkable epoch in architecture, during the reign of Henry VI.,—that of the introduction of elegant groups of chimneys, whose shafts were beautiful, and highly ornamented, like lacework, in a variety of curious devices, as those at Eaton College, which are still to be seen. Nether-hall, Essex, West Stow-hall, Suffolk, and East Barham-hall, Norfolk, illustrate the age of Henry VII.* The residences of noblemen, however, up to this period, still continued, from the love of ostentation, to be battlemented,† and encircled with moats; but the multitude of turrets, of various forms and designs, had completely changed their warlike character; while the love of ornament went on increasing, till the enriched monastic Gothic adorned the most prominent features; even the decoration of chimney-shafts, in the end, was carried to an extreme as may still be seen in a beautiful group, consisting of ten, in the last-mentioned edifice.‡

These castellated mansions were always built to surround one or two quadrangular courts, in the monastic or eastern manner; the circumference of the first, when there were two, being always occupied by the offices and servants' rooms; that of the second, by the principal or state apartments, and the chapel. Regular quadrangular houses, turretted, and not castellated, were sometimes built during the above reign; but it was under Henry the Seventh that this superior style of domestic architecture became universal.§ The quadrangular form, as well for security and convenience, as in imitation of the conventual houses, which were always constructed upon this model, was generally preferred,

* Bloomfield's Norfolk, vol. iii.

† The almost continual state of warfare in which the great chiefs were engaged, and the long contention between the houses of York and Lancaster, had at length destroyed many of the most ancient of the nobility, and at the same time brought about a very great change in the landed property of the kingdom. When Henry VII. attained the crown, his laws against engaging retainers greatly lessened the grandeur of the barons; the statutes admitting the sale of their estates, together with the increasing luxuries of the times, completed the annihilation of their former exorbitant power; and the younger branches of many noble families, whose fortunes were unequal to support them in a more exalted situation, embraced the opportunity afforded by trade to increase their patrimony. Commerce was encouraged, from political motives, by the monarch, who thereby created a new class of subjects, forming a balance to the power of the nobles, and by that means laid the foundation of a more equal distribution of wealth; much of which was anxiously applied to the decorations of the newly-erected mansions, which it was no longer necessary to obtain a licence from the king to build. This important change in society gave rise to the many country residences which now appear in England, a source of so much gratification to our national pride.

‡ A very interesting example of a bay-window of the age of Henry VI. is still to be seen in a house near the Globe Tavern, at Exeter. (See an engraving of it in the Rev. George Oliver's History of the Churches in Devonshire, published by Mr. Featherstone, taken from a drawing by the author of this work.) Crosby-Hall, in London, is also of this period. (See Pennant's History of London.)

§ Archæologia, vol. iii.

even where the dwelling-house, as, indeed, was usual, only took up one side; the remaining three contained the offices and farm-buildings with communication: several very old parsonage-houses appear to have been built in this manner.*

Even from the time of Edward III., there certainly existed mansions not completely castellated,† but those remaining, now habitable, are so few that a perfect one would be with difficulty discovered. We shall merely mention, as conspicuous for their preservation, (though having undergone some considerable alterations,) those of Bramhall in Cheshire, Hampton Court in Herefordshire, Lypiate in Gloucestershire, and Witham in Berkshire, all in the hands of possessors who are not insensible to the peculiar beauties of these rare and venerable models of early taste.

ANCIENT TOWN-HOUSES.

The town-houses during the middle ages, numbers of which are still existing in our old municipal boroughs, were very picturesque, and of peculiar construction, being formed chiefly of timber, and their stories overhanging each other as they rose upwards, a form observed in every period of their history. Though not certainly the best devised for the health of the inhabitants, yet nothing could be better calculated for giving endurance to the perishable materials, of which they were composed, than the protection each overhanging story gave to that below it. Oak was chosen for the purpose, which was framed together by mortice and tenon, and the space between the frame-work filled with clay and chopped straw,‡ and afterwards plastered over, the frame-work being left to appear, which gave them a picturesque effect. The whole fabric generally rested on a stone foundation, about three feet from the ground. "The cities of St. Albans and of Coventry still abound in ancient domestic architecture; some of the houses of the latter city are even as old as the fifteenth century, having projecting stories, forming a most interesting subject for the artist and the antiquary, from the abundance of carved vine-foliage, grapes, lizards, and nondescript animals, with which their eve-boards, window-sills, and corbelled brackets are charged."§ Among others, one situated in Crosscheaping, had, until lately, the door ornamented with the figures of St. George and St. Michael.

Mr. Pennant remarks that the streets of Coventry were very narrow, and that the city contained very ancient buildings, the stories of which in some, impended one over the other, in such a manner as nearly to meet at the top, whereby they intercepted both sunshine and air from the streets below, and excluded the light of the sky.‖ There is a fine specimen of early municipal

* Bloomfield's Norfolk, vol. iii.

† The larger castellated and turreted mansions were generally erected by men of great estates, principally during the Lancastrian period, or reign of Henry VI.; very few now existing, if any, can be traced higher, for such has been the effects of time, still more through the advance or decline of families, and the progress of architectural improvements, and the natural decay of those buildings, that I should conceive it difficult to name an entire house in England still inhabited by a nobleman and not belonging to the absolute order of castles, the principal apartments of which are older than even the reign of Henry VII., the instances, at least, would be extremely few. Early in the fifteenth century the art of building with brick, which had been neglected since the Roman dominion, was again introduced, probably from Flanders, though several edifices are to be met with of an earlier age, constructed with this material; such, however, did not come into general use till the reign of Henry VII. Many considerable dwelling-houses, as well as public buildings, were erected with brick during his reign, but chiefly in the eastern counties, where the deficiency of stone was most experienced. Few of these brick mansions, however, are now to be met with, except in a dilapidated state. Queen's College and Clare Hall at Cambridge, and part of Eaton College, are, however, attesting witnesses to the durability of this material.—(Archæologia, vol. i. p. 143, vol. xiv. p. 91.)

‡ "Such houses," said the Spaniards, "though built of sticks and dirt, afforded good hospitality."

§ Antiquarian Cabinet.

‖ Erasmus in his visit to this country, did not hesitate to attribute the frequent epidemics which visited England, in a great measure, to the defective ventilation of the houses, (and he might have added their very low ceilings.) Their fixed windows precluded the free admission of air when necessary, while it found its way abundantly through the crevices in the walls, when its exclusion might have been desirable.

architecture at Coventry, in that of St. Mary's Hall, a building of great curiosity, which is used for corporation assemblies. It was erected as far back as the beginning of the reign of Henry VI., and over the gate-house are figures of the king and queen in a sitting posture; within is a fine old chamber, having in the upper end a beautiful oriel-window containing many figures, in richly painted glass, with a number of Latin sentences on the walls.—(Leland's Itinerary.)

The cities of Exeter and Chester, as well as the towns of Dartmouth in Devonshire, and Colchester in Essex,* contain very ancient timber-framed houses on stone foundations. In the first of these are several built in the reigns of Elizabeth, and James I., (the Guildhall is of the latter era,) some are as early as King John's time, while others are that of Charles I., all ornamented with carved work, chiefly of scrolls, fruits, foliage, birds, fishes, masks, and animals of such grotesque and nondescript characters as it would puzzle a naturalist to classify.† The stories of the houses here also project over each other; some are even in the Swiss character, but having, in addition, bay and oriel windows, as chiefly observed in certain houses in the High-street. One house in North-street is particularly interesting on account of its rusticated columns, and carvings of biped nondescript animals; and another in St. Catherine's-court, near the post-office, has a very curious ancient oriel-window, supported on the heads of a band of grotesque minstrels of the talbot, falcon, and monkey race, which was intended probably as a burlesque on some ecclesiastical fraternity of that day.‡

The town-houses of the nobility in London, in the fifteenth century, were generally very spacious, and on the plan of the old inns, while those of the citizens and merchants were of ordinary size, and generally constructed of wood, which continued to be the material in use down to a very late period.§ So slowly did any innovation take place in the system of building wooden town-houses, that Stow particularly notices a brick-tower, as the first of the kind, built by one Thos. Champanzey, (mayor of London, in 1534,) and a turret of timber by a citizen in Lime-street. Those structures, he says, which were attached to the houses, seemed to have given great offence, and their owners were reproached for a desire to overlook their neighbours; but who, says the credulous historian, "were afterwards afflicted with blindness for their presumption."

To be enabled to remove a house in case of bad neighbours, every one will admit is a desirable but a very difficult task: we will, however, give a statement from Stow, the London historian, to prove its practicability. "The Earl of Essex," says he, "having built a mansion in Throgmorton-street, and finding it much pressed upon by a house in the rear, caused the said house to be loosened from its foundation, placed upon rollers, and backed twenty-two feet into a garden belonging to my father, who, in common with the owners of the adjoining gardens, lost his land, without notice, and without compensation;" while it is added, "no man durst go to argue the matter." ‖

* In the reign of King Edward III. Colchester contained three hundred and fifty-nine houses; some were built of mud, others of timber, and none having any but latticed windows. From an inventory in the reign of Edward I., in this town, a carpenter's stock was valued at one shilling, and consisted of five tools; other tradesmen were almost as poor, but a tanner's stock was worth £9. 7s. 10d., more than ten times any others. Tanners were principal tradesmen, the chief part of dress being made of leather.—(Eden's Introduction to the State of the Poor, p. 20 and 25; and from the Parliamentary Rolls.)

† In the interior of the houses at Exeter, several of them have their ceilings highly ornamented in plaster, representing dining-tables, set out with all the various dishes, containing joints of meat, pies, fish, fowl, fruits, and various other edibles. One of this description may be seen at a colour-shop on Fore-street-hill, belonging to the late Mr. Barberg, now Mr. Davey.—(B.)

‡ This was frequently the case between the monks and the regular priests, of which many instances might be given, one particularly in the front of a house at Norwich, near the cathedral, where there is a piece of carved wood representing a monkey preaching from a pulpit to a flock of geese.—(Bloomfield's Norfolk.)

§ The Talbot Inn, in the Borough of Southwark, from whence the pilgrims set out to visit Thomas-à-Becket's tomb at Canterbury, as described by Chaucer, still exists, though some parts have undergone considerable alteration.—(F.)

‖ The most curious wooden edifice was that erected upon the old London-bridge, in the reign of Queen Elizabeth,

Harrison, the historian, who wrote in the reign of Queen Elizabeth, when many of the wooden town houses were existing, and in great perfection, makes certain pointed observations on the artisans, and the Domestic Architecture of that day. "I speak," saith he, "sith our workmen are growne generallie to such an excellencie of deuise in the frames now made, that they farre passe the finest of the old. And such is their husbandrie in dealing with their timber, that the same stuffe which in time past was reiected as crooked, vnprofitable, and to no vse but the fire, dooth now come in the fronts and best part of the worke. Whereby the common saieng is likewise in these daies verified in our mansion-houses which erst was said onelie of the timber for ships, that no oke can grow so crooked but it falleth out to some vse." Thus it appears that many forms which at first sight may be thought fantastical were founded in good sense, and, what is still more recommendatory in these times, in economy.

When James I. came to the throne, he soon saw the decay of our native forests, and the combustible nature of the wooden houses in the metropolis, and therefore became desirous of more lasting, as well as more uniform structures. In consequence of this, he passed a law in the second year of his reign, enjoining that all buildings which might be hereafter erected in London, were to be made more durable, uniform, and comely.*

LANCASTRIAN PERIOD.

We have stated, that the domestic residences of the barons were greatly improved in cheerfulness and comfort, and the castles built less frowningly under the first and second Edwards, when they were compelled to obtained a licence from the crown to embattle. That architecture also attained a high degree of splendour in the early part of the reign of Edward III., we have the further authority of Piers Plowman, who says they had at that time

> "Halles ful heygh, and houses ful noble,
> Chambers with chymneys, and chapels gaye."—(Plowman's Crede.)

After this, we had Chaucer, the poet, who lived till the beginning of the Lancastrian period; he has given us a good description of the mansions of the nobility and gentry in his time, and from his being appointed clerk of the king's works at the royal palaces of Westminster,† the royal manors

called Nonsuch-house. It was wholly constructed of wood, framed in Holland, brought over in pieces, and united here with mortice, tenon, and wooden pins, not a nail being used in the whole fabric. Like most of the other buildings on the bridge, it overhung the eastern and western sides, and presented from the river two fronts not inferior in picturesque beauty to those exhibited towards the city and Southwark; the grotesque carving and enrichments—for which the Dutch are celebrated,—and its turrets and numerous windows, were exceedingly curious and interesting. It was taken down in 1738, but a scarce print of it may now be seen in Hollar's Views of London.

* King James I., acting upon good advice, for the preservation of timber, and prevention of all future excessive increase of buildings in London and the suburbs, and for regulating all the buildings upon a safe, comely, and uniform plan, caused a proclamation to be issued, strenuously commanding, that from that time forward, all tenements and all new buildings should be made either of brick or stone; but neither that, nor divers other proclamations wholly to that purpose prevailed; whereupon divers were censured in the star-chamber. From this time began the new reformation in building in London, and the first house of note was Colonel Cecil's house in the Strand, and after that, a house near Drapers' Hall, towards Broad-street; and then, a goldsmith's house in Cheapside, over against Salters' Hall, and a leather-seller's house in St. Paul's Church Yard, and, near the north gate; he was compelled thereto after his house was set up, being at first all timber.—(Stow's Survey of London.) However fires in cities and large towns are to be deplored as a calamity, yet they have generally been attended with future and more lasting improvements.—(B.)

† This ancient palace, which is supposed to have been originally built by William the Conqueror, stood on the site of the present house of Commons. It was consumed by fire in 1299, but rebuilt by Edward I. It was against destroyed by fire in 1512, during the reign of Henry VIII., with the exception of the painted chamber, and was never afterwards re-edified.—(Stow.) This chamber, in which the House of Commons have sat down to our own time, has once more, by another conflagration, been entirely destroyed, which calamity took place in 1834. Some account of the original state of this once-noted place may be interesting. "Near the monastery of St. Peter's Church, (Westminster Abbey,)" says Friar Simeon, "stands the most famous royal palace in England; in which is that celebrated chamber, on whose walls all the warlike his-

of Sheene, Kennington, Byfleet, Clapton, and St. George's chapel, at Windsor, we may fairly conclude that he was possessed of a knowledge of architecture.*

That Chaucer was a close observer of the domestic buildings of this period, he has given us proofs. In his Castle of Pleasant Regard, he informs us, there were towers, turrets, and vanes attached to that edifice; some of which vanes were musical, and were objects of great attraction and beauty: they were probably afterwards introduced into the Lancastrian architecture, and from thence found their way to the Tudor. Thus he says,

"The towris hie full pleasant shal ye finde,
With phanis freshe, turning with everie winde."

Then musical,

"Aloft the towres the golden fanes goode,
Dyde with the wynde make ful sweete armony;
Them for to heare it was great melodie."

In his famous dream he fancied the battle of Troy to be depicted on the glass of a bay or oriel-window of a chamber in which he lay, which shows that painting on glass was then known and practised.

"Full clere, and not an hole yerased,
That to beholde it was greate joy;
For wholly all the story of Troy
Was in the glaisinge ywrought thus,
Of Hector, and king Priamus."

This we may infer was a description of the poet's own bed-chamber, probably at Woodstock: that there were oriel-windows then, and before this time, we have authority to show;† and also that those windows were "ffloryssede with imagerye."‡ Near the end of the Plantagenet reign, John of Gaunt's Palace, in Lincolnshire, which was then erected, was the most remarkable domestic structure of that period: this building had also a pendant oriel-window, but of a very curious kind. From this edifice, and the noble triple corbelled gateway to Lancaster castle, built by John of Gaunt, we must form our ideas of the early architecture of the Lancastrian period, as we have no very considerable or sufficient remains, or even authority to draw from.§ Stokesay or Stoke Castle, in Shropshire, may, however, be described as the type of a very numerous class of manor-houses of the fifteenth century. The building is a parallelogram, inclosing a court of one hundred and thirty feet by seventy, and is protected by a moat. The house and offices, with the entrance-tower and gateway, occupy three sides of the court, the fourth is inclosed by a low wall only. The hall, fifty-

tories of the whole Bible are painted with inexpressible skill, and explained by a regular series of texts, beautifully written in French, to the no small admiration of the beholder, and display of royal munificence."—(F. S.)

* Chaucer lived at Woodstock, near Blenheim, in Oxfordshire. Warton informs us, that his house was a quadrangular stone mansion, and that it commanded a view of the ancient magnificent Norman palace near that place. Its last remains, chiefly consisting of what was called Chaucer's bed-chamber, with an old carved oaken roof, evidently original, has since been destroyed.—(W.)

† The origin and derivation of oriel-windows is unknown, (probably Eastern, being common in the Oriental houses,) but they are of great antiquity. In Conway castle, in Wales, there is an oriel, built by Edward I., in 1284; which is the earliest we are acquainted with in this country. The castles raised by that monarch for the security of his new dominions in Wales, are among the first that combined the fortress and the palace in an integral structure: previous to this time all the Welch castles were constructed of wood. Conway castle includes two courts within the body of the building. The great hall, (thenceforward indispensable in every royal and noble habitation,) occupying one side of the lower area. The separate apartments of the king and queen are to be distinguished both at Conway and Caernarvon. In the former, tradition points out the "queen's oriel," a room with some pretensions to elegance, opening upon a terrace, and commanding a beautiful view of the surrounding scenery.—(W.)

‡ Syr Libeaux Diasconios.

§ John of Gaunt was Duke of Lancaster, son of Edward III., and father of Henry IV., the first monarch of that line of which we are treating. His palace was erected in 1390; part of it still remains, and is thus noticed by the historian of that county. "The old hall, or palace, of John of Ghent, as it is commonly called at Gainsborough, is a timber-framed edifice, forming three sides of a quadrangle, open to the south, with a chapel on the north side, it was once moated round, and had large gardens and fish-ponds."—(M.) A fish-pond to a country mansion, before the Reformation, in consequence of such frequent fast-days, was a necessary appendage.

four feet long and thirty-four wide, is lighted by four arched windows on one side, and three on the other. It has no chimney, and the massive rafters of the high-pitched roof, are blackened with the smoke from the hearth in the centre. The hall communicated at one end with the great chamber, and at the other with the offices. A high polygonal tower rises at one of the angles, surmounted by an embattled parapet, and pierced with loop-holes, which gives a castellated appearence to the edifice. This tower contains three large rooms in as many stories, communicating by a spiral staircase. A similar tower at the opposite angle appears to have been left incomplete.

Of the Lancastrian architecture at a later period, down to that of Henry VI., there are still existing some examples,—such are Tattershall castle, Ockwells, in Berkshire, and the noble gateway of Oxburgh-hall, in Norfolk, a very curious and imposing structure, with lofty towers having triple arched panels, and step-battlements. But at the commencement of this king's reign, his right to the throne having been contested by Edward IV., Duke of York, they were involved in a thirty years' reckless war, which proved so desolating, that no fewer than sixty villages within twelve miles of Warwick, some of them large and populous, with manor-houses, were destroyed and abandoned, besides many strong and superb castles; and their noble owners, who might have rebuilt them, either killed or ruined. After the termination of the contest, King Edward IV. visited all the provinces of his new dominions, and caused upwards of fourteen hundred noblemen and gentlemen, who were either impeached or convicted of adhering to King Henry the Sixth's interest, to be put to death.*

The number of artificers who fell was so great, that this class became exceedingly scarce; and from the restrictive acts that were afterwards passed by Henry VI. against apprenticing boys to trades, for the promotion of agriculture, (unless the parent was possessed of twenty shillings a year in land,) paralyzed the progress of Domestic Architecture and the arts in England until the reign of Henry VII.†

* In the quarrel between these two families, the Earls of Devon adhered to the house of Lancaster, and three brothers successively died either in the field or on the scaffold; but there still survived a lineal descendant of Hugh, the first Earl of Devon, a younger brother of the Courtneys, who have been seated at Powderham castle, above four hundred years from the reign of Edward III. to the present day.—(Cleveland's History.) It is now in the possession of the Right Honourable William Courtnay, Earl of Devon.—(B.)

† *State of Living in England from the reign of Edward I., Plantagenet, to Henry VI., of the House of Lancaster.*—Accustomed to judge of the Norman or feudal period by historians and works of fiction, in which are found accounts of remarkable festivals, tournaments, and exploits of chivalry, many are so inconsiderate as to transfer the manners of the seventeenth to the fourteenth century, not being at all aware of the usual simplicity with which the gentry lived from the time of Edward I. to Henry VI. During this period, they drank little wine, had no foreign luxuries, rarely or never kept male servants, except for husbandry, and seldom travelled beyond their own county. Even their hospitality must have been greatly limited, if the value of manors was really no greater than we find them in many surveys. Twenty-four seems a sufficient multiple when they would raise a sum mentioned by a writer during the reign of Edward I., to the same real value expressed in our present money; but an income at that time of £10 or £20 was reckoned a competent estate for a gentleman; at least, the lord of a single manor would seldom have enjoyed more. A knight, who possessed £150 per annum, passed for extremely rich.—(Macpherson's Annals, p. 424, from Mat. Paris.) Yet this was not equal in command over commodities to £4,000 at present. But this income was comparatively free from taxation, and its expenditure heightened by the services of his villiens: such a person, however, must have been among the most opulent of country gentlemen Sir John Fortescue speaks of five pounds a-year as a fair living at this time for a yeoman.—(Difference of Limited and Absolute Monarchy, p. 133.)

At this time the yeomanry usually lived in a dwelling, the walls of which were framed with timber, lathed and filled in between the interstices with clay mixed up with dried grass; they had seldom any chimneys, and contained few conveniencies. The farmer and his wife slept on straw pallets, covered only with a sheet and coarse coverlet, or upon a straw mattress and a bolster of chaff. Their servants slept upon straw, but had not always a coverlet to throw over them. All dined off wooden trenchers, and ate their pottage with a spoon of the same material. Even a substantial yeoman did not possess more than four or five pieces of pewter-plate, and the sum of money which he could raise was insignificant: only the gentry could afford to eat wheaten bread the year through. The servants and the poorer class of people ate bread made of barley and rye, and, in dear years, the bread was made of beans, peas, or oats. Labourers' wages in the reign of Henry VI. was one shilling and sixpence per week, and butcher's-meat a farthing and a half the pound.—(Fitzherbert on English Husbandry, 1522.)

TUDOR ARCHITECTURE.

"Henry the Seventh's policy," says the English historian, Hume, "when he came to the throne, consisted in depressing the barons, and elevating and promoting men of new families, who were more dependent upon his will. The nobility therefore now, instead of vying with each other in the number and courage of their retainers, which had hitherto been the case, by degrees acquired a more social and laudable emulation, endeavouring to excel in the splendour of their mansions, stables, and equipage; while the common people, no longer retained in vicious idleness by their superiors, were now obliged to learn some calling or trade, thus becoming useful both to themselves and to the state. Henry VII. was himself a great builder,* and with him, and not at the dissolution of the monasteries, began that style of domestic architecture of which we are now about to treat. The mansions of this period were, however, still calculated, in a slight degree, for defence, and continued to be so till the reign of Elizabeth.†

TUDOR PALACES.

PALACE OF KING HENRY VII. AT SHEEN, RICHMOND, SURREY.

The Tudor palatial architecture is of three distinct characters, though all modifications of each other. First, we have the turreted style, with bay-windows, the turrets being crowned with bulbous domes, which sprang up under Henry VII. Secondly, that of the turret, the oriel-window, and the gable with pinnacles, in the time of Henry VIII.; and, lastly, that of gables and pinnacles alone, in the reign of Elizabeth. The palace at Sheen, near Richmond, built by Henry VII.,‡ was in a style peculiarly his own, and composed from the Plantagenet castles, with turrets assimilating to those of his chapel at Westminster, and the bulbous domes which crowned them from the Iwan and other public edifices at Moscow.§ Such an agglomeration of turrets, somewhat resembling minarets, gave this edifice much the appearance of a mosque, or an Arabian palace. A perspective representation of the exterior of this picturesque and splendid pile has fortunately been preserved, and may be seen in the volumes of "Vetusta Monumenta," engraved from an original painting in the British Museum, whose dimensions are nine feet ten inches by four feet eleven inches, executed, as is supposed, by a pupil of Rubens, early in the reign of Charles I.

* In his reign, among other edifices, he rebuilt the palace of West Sheen, Richmond, in Surrey, and King John's palace, at Eltham, in Kent, he greatly enlarged and ornamented, the hall of which, though dismantled, still remains; both of these structures were of similar characters externally, and that character widely differing from the castellated and the ecclesiastical buildings; although some parts of the interior still retained features which assimilated with the castle and the convent.—(B.)

† A licence to build and embattle was still required before the Reformation: although the embattled manor-house had laid aside the defensive character of the castle, and was therefore beneath the jealousy of the crown; still a royal licence was made as necessary for building the one as the other; thus we find an application for granting a licence to build Hengrave-hall in Suffolk:—

"To the king oure soverigne lorde pleas it your hignese of yor mooste habundante grace, to gunt your most gracious ires patente under yor great seale of England, in due forme, to be made after the tenour ensuying, Rex omnibs ad quos, &c. salutem, &c."—(Gage's History of Hengrave.)

‡ Rymer's Fœd. tom. xiv. p. 710. b. ex.

§ The whole of the buildings at Moscow were constructed of wood, and considered the most imposing and picturesque in the world; they had on their roofs pavilions and gazebows, in the old Russian-Tartar style, with turrets crowned with bulbous domes, rising from every part of the city; but the Russians themselves, in a moment of danger, rashly destroyed this ancient seat of their emperors, to prevent the hostile army, under Bonaparte, from wintering there in 1812. On the French first beholding this city, they were delighted beyond measure at the beauty of the prospect. From the summit of a hill they saw a thousand steeples and spires, gilded cupolas, and domes, and palaces without number. The kremlin, or citadel, and the towers of the Iwan, rising above the rest, with gilt domes emblazoned by the rays of the sun, caused the whole to appear like an enchanted city.—(Labaune, Campagne de Russie, p. 198.)

This royal edifice now no longer exists ;* it was seized by Cromwell, who caused a survey of the premises to be made previous to a sale; but soon after the return of Charles II. it was restored to the royal family, though probably in a dismantled condition, as after this period it fell rapidly into decay.

Description of the rooms which were in this palace, copied from the original returns, made anno 1649, by the commissioners of Cromwell's parliament, may be interesting and useful to the architect, as it shows the internal arrangements of a royal palace at that, period.†

PALACE OF KING HENRY VIII., AT CUDDINGTON, SURREY.

Of the palatial architecture of King Henry VIII., that of the palace of Nonesuch, built by that monarch at Cuddington near Cheam, and not far from Wimbledon, stands pre-eminent for splendour and pompous elegance. In its outline it had somewhat the appearance of the later castles, but more ornamented, with a keep-tower in the centre, and flanked with octagonal turrets. Queen Elizabeth resided at this palace, and it was afterwards settled on Anne of Denmark, Queen of James I. The edifice being chiefly constructed of timber, was not calculated for long duration, and was pulled down in the reign of Charles II. Of this fanciful and whimsical pile, a print may be seen in Speed's Theatre of Great Britain, published in 1676; and though not very correct in the requisites of drawing, proportion, or the perspective, yet its character may be sufficiently understood and described.

* King Henry VII. died here in 1509, and afterwards Henry VIII. occasionally resided at this palace; but by letters patent, dated 2 Jan. anno. Reg. Sui. 33°., granted it to his late Queen, Anne of Cleves, for her life; which place she some time afterwards surrendered by her deed-poll to King Edward VI., dated 3d June, anno Reg. Sui. 2do., from which time it remained in the crown. It was here Queen Elizabeth departed this life in 1603.—(Speed's Theatre of Great Britain.)

† "All that palace and court-house, commonly called Richmond Court, consists of one large and fair structure of freestone, of two stories high, covered with lead; the lower of which story has one very large room, called the great buttery, well floored and lighted; another little room, called the buttery-chamber; another, the silver-scullery; and one little room called the sancery; and a large fair passage. The higher story, containing one large room, is one hundred feet in length, and forty feet in breadth, called the great hall. This room hath a screen in the lower end thereof, over which is a little gallery, and a fair foot pace in the higher end. The pavement is square-tiled and very well lighted, and ceiled above, and adorned with eleven statues in the sides thereof; in the midst is a brick hearth for a charcoal fire, having a lanthorn in the roof of the hall above to carry off the smoak; turreted, and covered with lead.—Memo. In the north end of the great hall, there is one turret for the clock, covered with lead, which, together with the lanthorn in the middle thereof, are a special ornament unto that building. For a description of the pictures of the kings of England in this pleasant hall, see MS. in the College of Arms, Antiq. Rep. vol. ii.

"The privy lodgings consist of a very large freestone building of curious workmanship, three stories high, all covered with lead, having twelve rooms upon every story; the lowest whereof contains one room, called the waiters'-chamber: three rooms, called the robe-rooms; four rooms belonging to the master of the horse; one room, called the servant's dining-room, and three others belonging to the groom of the stole, all well floored, lighted, and ceiled. The middle story contains one room, called the lobby, arched over-head, and covered with lead, in the middle of which roof is a fair lanthorn; another chamber, called the guard-chamber; one room, called the presence-chamber; one, called the privy-closet; one, the privy-chamber; one room as a passage, another room for a bed-chamber, and the withdrawing-chamber; another, the Duke of York's bed-chamber; the school-chamber, and a room for the passage to the bed-chamber, all of them being well lighted and ceiled, and matted upon each floor, and therefore very pleasant. The third story contains twelve chambers, very well lighted, ceiled, and most of them matted.—Memo. The whole edifice is battled and leaded, and hath upon it fourteen turrets, all crowned with domes covered with lead, and rising at a convenient height above the said leads, which turrets do very well adorn and set forth the whole fabric, and are a very graceful ornament unto the palace, being conspicuous to the country round about. In the middle of the structure is a paved court, forty feet long and twenty-four feet broad, which renders all the rooms there that eye inwards, to be very light and pleasant.—P. S. Some writers say there was an open court towards the garden, two hundred feet in length, consisting of three sides, with a piazza or deambulatory, having a gallery above it; but that is not stated in the schedule.—(B.)

"Appendages.—A pyramidal tower, as an ornament to the whole fabric, belonging to the chapel, the queen's closet, the princesses' closet, the wardrobe, the privy-kitchen, and livery-kitchen, with turrets. The flesh-larder, pastrie and fish-larder, poultry-house, scalding-house, bake-house, and wood-house, the armory and keeper's-house.

"The privy-garden contains three roods and twelve perches, surrounded with a brick-wall twelve feet high. In the middle a round knot, divided into four quarters, edged with box for flowers; in the centre of which knot is a fair yew-tree, and, against the walls, sixty-one fruit-trees, and a leaden cistern, with pipes to supply the garden with water.

"The great orchard is cut into one great square, and one little triangle and planted with cherries and other fruit-trees, to the number of two hundred and twenty-three. There is also a handsome aviary here, where turtle-doves are kept."—(Speed's Theatre of Great Britain.)

The palace itself was a quadrangle, enclosing a court: it had turrets at the four angles formed into stages, rising above the main building to a great height, which were crowned with bell-formed domes, and these were surrounded by multitudes of vanes supported by statues. In the centre of the quadrangle rose a massy square tower, with polygonal cranelated turrets at the four angles. In the front of the tower were oriel-windows and a sun-dial; and at the top of the tower an observatory, surmounted with a gazebow, crowned with a bell-formed dome, and numerous banners and vanes supported by statues and lions rampant. This tower rose majestically to a great height above the other parts of the pile, from which a fine panoramic view was obtained of the surrounding country. Both English and foreign writers have extolled this palace as a paragon of beauty, and a master-piece of its kind; but the basso-relievos with which it was so abundantly decorated on the exterior, it appears, were many of them formed of plaster. From the description given by a German traveller, Hentzner, who visited this place in the reign of Queen Elizabeth, we may infer, that those figures in relievo were of Italian workmanship, but that some might even be after the antique.* As the work is scarce, and was written in Latin, we shall subjoin a translation of it from a copy now in the British Museum.†

WOLSEY'S PALACE, HAMPTON COURT, MIDDLESEX.

The Tudor architecture had not yet been rendered sufficiently attractive, until after Cardinal Wolsey had built his princely palace at Hampton Court. In this essay, the Tudor style was now much improved; though its prototype, in some degree, may be seen in Henry the Seventh's chapel at Westminster, and partly from that of the gateway of St. Augustine's monastery, Canterbury. In the preceding edifices, the roofs had at first been flat for the operations of warfare, but afterwards, in more peaceable times, they were concealed merely to give the building a castle-mansion appearance. The summits of these latter structures were also cranalated; and some had pendant turrets at various angles, by way of ornament; but they had neither gables, pediments, nor pinnacles. Now, in Cardinal Wolsey's style, the roofs were made to appear, and much elevated and clustered chimneys, gables, and other pediments, after their first introduction, abounded.‡ This beautiful palace has since been

* In the court, all Ovid's Metamorphoses were sculptured in pannels under the windows.—(Herne's Collections.) Pepys says, all the palace on the outside was filled with figures of warriors, and good paintings of Rubens' or Holbein's doing; and that most of the house was covered with lead and gilded, I mean the pannels and quarterings in the walls.—(Pepys' Memoirs.)

† "Nonsuch, a royal palace at a place formerly called Cuddington in Surrey; a very healthy place, chosen by King Henry VIII. for his residence and retirement, has been built by him with an excess of magnificence and elegance, even to ostentation. Here one would imagine, every thing that architecture can perform has been employed in this one work. There are every where so many statues that seem to breathe, so many miracles of consummate art; so many casts that rival even the perfection of Roman antiquity; that it well and justly claims its name of Nonsuch, being without an equal, or as the poet sung,

'This which no equal has in art or fame,
Britons deservedly do Nonsuch name.'

"Park and Gardens.—The palace itself is so encompassed with parks, delicious gardens, groves, ornamented with trellis work, cabinets of verdure, and walks so embowered by trees, that it seems to be a a place chosen by Pleasure herself in which to dwell along with Health.

"In the pleasure-gardens, which are laid out in various devices of beds, are many columns and pyramids of marble; two fountains, that spout water, one over the other (or two falls) like the frustum of a cone, upon which are perched small birds that spout water out of their bills. In the grove of Diana is a very agreeable fountain, with a statue of Actæon turned into a stag, as he was punished by the goddess and her nymphs. There is beside another pyramid of marble full of concealed pipes, which throw water upon all that come within their reach, (like that at Versailles in France.)"—(Hentzner's Account of England in 1598.)

‡ Henry VIII. being engaged in building himself, we are informed, had become exceedingly jealous of the cardinal in consequence of his building this sumptuous palace; and when asked by the king what he meant by erecting a house so much finer than any of the royal palaces, the aspiring minister—thus suddenly and sharply reminded of whose breath he was the creature—had only one part to take, and replied to his majesty's question, "That it was not for hi.self he was

so altered, that it now presents only a combination of mixed and discordant parts of Roman and Tudor, no reference having been had in the alterations to the former style of architecture. Originally this palace consisted of five quadrangles.*

The great hall on the north side, at the end of which is a sumptuous oriel-window, still remains, which shows the splendour of the place, and reminds us of the once unbounded feasting within its walls.† It was added by Henry VIII., and is one hundred and five feet in length, forty feet in breadth, and fifty-nine feet high, with a richly carved Gothic roof of timber, like the banquetting-hall built by William Rufus at Westminster. Of this gorgeous palace we may form a good idea from a poem written at the time by Andrews, of Bury St. Edmonds.

"Let any wight (if such a wight there be,)
To whom thy lofty towers unknown remain,
Direct his steps, fair Hampton Court, to thee,
And view thy splendid halls; then turn again
To visit each proud dome by science raised,
For kings the rest (he'd say) but thou for gods wert rais'd."

Cardinal Wolsey also built for himself a city house at Whitehall in this style, equally splendid; and erected tow colleges, one at Ipswich, his native place, (the gateway of which was composed from the gateway of St. Augustine's monastery, at Canterbury,) the other at Oxford. Cavendish, in his biography of Wolsey, has given us a poetical account of his house, furniture, and gardens at Whitehall; but as they no longer exist, we shall give his description of each.

"His buildings sumptuous, the roof with gold and byse,
Shone like the sun in mid-day sphere,
Craftily entaylled, as cunning could devise,
With images embossed, most lively did appear.
His galleries were fair, both large and long,
To walk in them, when that it liked him best.
His gardens sweet, enclosed with walles strong,
Embanked with benches, to sit and take his rest.
The knotts so enknotted, it cannot be expresst;
With arbours and allies, so pleasant and so dulce,
The pestilential air with flavours to repulse;
His chambers, garnished with arras fine,
Imparting personages of the liveliest kind.
And when he was disposed in them to dine,
His cloth of state, there ready did he find.
The subtill perfume of musk and sweet amber,
There wanted none to perfume all his chamber;
Plate of all sorts, most curiously wrought,
Of fashions new, he cared not for the old:
No vessels but silver before him was brought,
Full of dainty viands. The same could not be told.
He drank his wine always in silver and gold.
His crosses twain of silver, long and great,
That daily before him were carried high
Upon great horses openly in the street.
And massy pillars, glorious to the eye,
With poleaxes gilt, that no man durst come nigh;
His presence was most princely to behold,
Riding on mule, trapped in silver and in gold."
(Cavendish's Life of Cardinal Wolsey.)

erecting such a dwelling; if the gift might be accepted, the palace of Hampton Court was intended for his sovereign." Had not Henry obtained his object in this easy and smooth way, he no doubt would have resorted to rougher means. However, the cardinal did not go unrequited; the king took the palace, but in recompense thereof, licensed him to live in his manor at Richmond palace, and so he lay there at certain times. This was in the year 1526; the palace afterwards became the favourite residence of Henry VIII.—(Stow's Annals.)

* See Vetusta Monumenta.

† In 1527, an entertainment of extraordinary splendour was given here by order of Henry VIII. to the French ambassador, over which the cardinal presided.

TUDOR MANOR-HOUSES, HENRY VIII.

When the fate of the numerous monastic institutions in England had been decided by Henry VIII., many of his courtiers and favourites became enriched by their spoils; receiving from him gifts of large manors and estates that had belonged to these suppressed houses.* Many of the noblemen afterwards thus caused alterations to be made in these highly ornamented monastic structures, converting them into manor-houses and country seats. As an instance, such was once the beautiful mansion of Layer Marney-hall, in Essex, which was given to Lord Marney, a captain of his guard.†

Thus from the above contingent events, originated a further advance in the improvement of our domestic rural architecture, producing a still more enriched style, examples of which are now, through the lapse of time or innovations, rarely to be met with in their perfect and original purity. The characteristics now assumed were multitudes of acute-angled gables, and pediments over the attic-windows, giving light to the roof within; and also breaking their otherwise monotonous outline in the elevation. The pediments and gables were also kneed, moulded, and surmounted with pinnacles, crockets, finials, banners, and vanes. The summits of the buildings during Henry's reign were embattled, and the oriel pendant-windows projected on clustered mouldings. The common windows had each a mullion, with a cross-transum and low-pointed Gothic heads, over which were label-mouldings, and the glass was flourished with tracery.

These edifices, says Bagford, were mostly built of brick, but some were faced with flints,‡ or more generally chequered with fine black glazed bricks; at other times various devices, dates, and even names have been produced, though of an earlier date; quoins, cornices, and other enriched parts were generally of stone.§ The principal decorations of the exterior, however, were reserved for the grand entrance, which usually exhibited the ostentatious embellishments of heraldry. That of Hengrave-hall, in Suffolk, is of peculiar beauty, and has a picturesque effect, as well as being a fine specimen of the florid style of Henry VIII. Helmingham-hall, in Suffolk, I shall notice here, as being a perfect model of this period, and in a high state of preservation, and which has frequently been selected as a standard specimen of that age.

* See Burnet's History of the Reformation, and Carew's Survey of Cornwall, p. 109, where, speaking of the priory of Port Elliot, at St. Germains, he says, at the suppression, this monastery being given to John Champernowne, it "changed its note with its coote;" of which he gives an amusing anecdote of the servility of this courtier.

† St. Augustine's Abbey, at Canterbury, was converted into a palace by Henry VIII., and Elizabeth kept her court here in 1573. The palace at York was the dissolved abbey of St. Mary, which Henry kept in his own hands after the Reformation.—(Dugdale's Monasticon Anglicanum.)

‡ The squaring of flints was a practice unknown to the Romans, at first adopted in this country in the reign of Henry VII.—(Dallaway's Observations on English Architecture.) Caddy-house, near Ottery St. Mary, in Devonshire, built in the reign of Henry VIII., contains very curious specimens of this mode of mixing flints with indurated chalk, cut into squares and alternated. An engraving of a gateway for Whitehall palace, designed by Hans Holbein, intended to be built in this manner, of chequered work, may be seen in the volumes of Vetusta Monumenta, in the British Museum.—(B.)

§ The diamonds and other fanciful forms, which are seen in the fronts of Tudor buildings, formed of vitrified bricks, were made for the purpose of employing in a manner the least unsightly such as were discoloured by burning. In a clamp or kiln of bricks, a certain number must, from their situation, be more strongly acted upon by the fire than the general mass, and consequently become darkly tinged. With the tact so peculiar to the old artisans, this, like other seeming disadvantages, was turned to account, and what in other hands would have been blemishes, were converted by them into embellishments. Instead of allowing the workmen to use such bricks indiscriminately, and thereby disfiguring the walls with spots, they were selected as being more valuable than the others, and wrought into devices where the plainness of those surfaces on the fronts had neither apertures nor stone-dressings. Many examples of this kind of ornament could be given, such as the gateway of Lincoln's-inn, built in 1518, and the old gateway at Lambeth palace. Those on the ancient Manor-house at Bermondsey, were perhaps the most striking; they consisted of lozenges with crosses upon their upper points, cross-keys and sword, the arms of the see of Winchester; the sacred cross, curiously constructed; the cross of St. Andrew; intersecting triangles, in allusion to the Trinity; the globe and cross, the merchant's mark, the badge of the borough of Southwark, and the representation of the west front of a church, comprising a centre with a Norman arch under a gable between two towers, whose pointed roof terminated in a cross.—(Buckler's History of Eltham Palace.)

The chimney-shafts were now particularly picturesque and curious, and frequently resembling groupes of small columns, with pedestals, plinths, bases, and capitals: they were made of bricks, moulded into forms of rich lozenge-work, twisted reeds, zig-zag, and fleur-de-lis ornaments. The octagonal turrets on each side of the entrance, on the flanks of the building, and at the entrance-gateway, were crowned with cimireversa domes, carved into laurel-leaves, and creeping crokets and finials, surrounded with rampant lions, supporting small banners of arms and vanes, curiously wrought and gilt; most of the edifices which were erected in the reign of Henry VIII., it is to be regretted, are now either in a state of dilapidation or have been greatly modernized; much of their peculiar character is, however, visible in the parts that remain, which may be seen at Hampton Court as well as at Hengrave-hall.* The following mansions of Henry the Eighth's period are still inhabited:—Belhurst, Durham, Compyton, Wingate, and Coughton Court in Warwickshire; Wyckham Court, Hampshire; Milton Abbey, Northamptonshire; Down Ampney, Gloucestershire; and Helmingham-hall, Suffolk, the seat of the Countess of Dysart.

At this period, in which lived Skelton the poet, the Tudor architecture had become exceedingly florid, which he thus describes in his Boke of Colin Cloute:—

"Building royally
Their mansions curiously
With turrets and with toures,
With halls and with houres,
Stretching to the starres;
With glass windows and barres;
Hanging about their walles
Cloths of golde and palles.
Arras of rich array,
Fresh as flowres in May."†

* We must look to the reign of Henry VIII. for models reducible to the wants of the present refined age, and of those edifices there are none more applicable than Hengrave-hall, in Suffolk, which was built by Sir Thomas Kitson, in the reign of Henry VIII., begun in 1525 and finished in 1538. The price of labour at that time was, for masons, per day sixpence; labourers, fourpence; carpenters, sevenpence; joiners, eightpence; sawyers, sixpence; carvers, sixpence; painters, sevenpence; and thatchers, fourpence. For boarding and lodging a mechanic the charge was one shilling and fourpence a week per head.—(Gages's History of Hengrave.)

† Interior of the Ancient Mansion and Tudor Manor-Houses.—The plans of these truly noble quadrangular buildings were exceedingly similar: they comprised an extensive range of apartments, which, in the present altered state of society, would be totally unnecessary; the very names of some of them are no longer familiar in houses of recent date, though built upon the largest scale, and of others the application is totally different. The hall of modern times is most distinct in its appropriation from the great hall of the baronial mansion, which was dedicated to hospitality and pomp. This apartment was the most conspicuous for size, and generally occupied one side of the quadrangle or open court: it rose the whole height of the building, having an open-worked timber roof, enriched with ornaments chosen from the heraldic insignia of the family, and producing an incomparably grand effect. The great halls are all that now remain of the palaces of Westminster and King John's palace, at Eltham, in Kent; each of which is a substantial and interesting fragment, exhibiting a beautiful specimen of this most ingenious and highly ornamented mode of framing the roof. Particularly worthy of notice are also the following halls—Hampton-court, Hadden-hall, Derbyshire; Beddington-hall, near Croydon; Penshurst, and Hatfield, each of whose noble apartments present a uniform arrangement most excellently calculated for the purpose to which they were appropriated; a general description will equally apply to every building of the period to which we advert.

At the entrance of the hall was usually a skreen, richly embellished with carving, and supporting a gallery appropriated to the minstrels retained in the service of the noble, who here, accompanied by harp, cittern, and dulcimer,

Poured to lord and lady gay
The unpremeditated lay.

The great clock, with the bell, was over the skreen, where the hall-bells in colleges are generally placed at present. In the centre of the hall was the hearth for the fire, which was either kindled against a reredosse, or in an iron cradle. Immediately over the fire was the lantern, in the roof, a beautiful ornament to the exterior, through the apertures of which the vapour escaped. This mode of warming the hall is still in use in some of the inns of court and colleges: the most ancient reredosse is at Penshurst. The upper end of the floor was raised, which constituted the high pace or dais; and here was the large bay-window, the numerous divisions of which were stained with the armorial escutcheons of the various connexions of the family, single, impaled, and quartered; and at this part of the hall, under a rich canopy of state, sat the lord of the mansion and his family. At the same table, on grand occasions, his superior guests were also placed. Down the sides of the hall were ranged the boards on tressels, with the forms or benches for the inferior guests and dependants. The ranks of the guests were further discriminated by their situation above or below the great saltcellar, which was

TUDOR-HALLS, ELIZABETHAN.

In the reign of Elizabeth, the style of architecture that had prevailed during the time of her father

placed, invariably, in the middle of the table. Though retainers were at this period prohibited, numbers of domestics, wearing the silver badge either upon their left arm or their breast, still contributed to the pomp of the festivals at extraordinary entertainments. The task of arranging the guests, which commonly devolved upon the seneschal or steward, was undertaken by persons of rank, nominated for the occasion; as at the feast given by George Nevil, Archbishop of York, at his consecration, the following officers, viz., the steward, treasurer, comptroller, carver, cupbearer, and marshall of the hall attended by eight knights, besides esquires and grooms. The ewer keeper of the cupboard and surveyor of the hall were each filled by barons or knights. The heralds also generally attended the festivals of the nobility, who affected almost regal state, and, as well as the minstrels, were allowed to have claims upon their liberality. Their bounty on these occasions was termed a largesse.

The floor of the hall was strewed with rushes, and the walls were decorated with the instruments either of war or the chase. The wine at the feasts was handed round in massive silver-bowls; and in houses of the inferior nobility, the display of silver was great; other services were of pewter, piled upon the court cupboard, and placed near the high board in the hall, which answered in their use to the beaufet, or more modern sideboard. Two of these cupboards are now in Stationers'-hall, which, on festivals, are garnished with the flagons, cans, cups, beakers, and other vessels of silver belonging to the company, some of which are remarkably large. There was one of these ancient pieces of furniture formerly in the hall at Skipton-castle, made between the year 1527 and 1542.—(See Whitaker's History of Craven.)

The splendid entertainments to which the great halls were chiefly devoted, consisted generally of three courses, and were concluded with a service of ipocras, a kind of spiced wine, followed by a desert of opice and confections. These feasts being frequent, were the means of rendering the old English barons extremely popular, and the poor also were daily partakers of their hospitality and charity. For this purpose, by the hall-skreen stood the alms-tub, from which the steward and almoner distributed a dole of meal to each. Near the hall was situated the great kitchen; at the hatch-door of which the attendant domestic received the dishes for the entertainment: these were placed on a broad shelf on the top of the hatch, and from thence quickly conveyed to the table. Every description of furniture, as well as the utensils of the kitchen, was upon the largest scale, and in the bakehouse the ovens were of an immense size, even amounting to fourteen feet in diameter.

Other domestic offices connected with the hall, and necessary for the household of a baron of the rank we have been describing, where their entertainments were conducted upon such an expensive scale, were the buttery, the pantry, the ewrye, the spicery, the pastry, the confectionary, the larder, the scalding-house, the squillery or scullery, the chandlery, and the laundry. The eleemosynary or almonry, as well as the chapel, were all upon the ground-floor. The domestic chapel, as it was only intended for the household, was comparatively small, but was generally embellished with decorations of the most beautiful and imposing description. The altar, with its crucifix of elaborate workmanship, of ivory and silver, its windows, stained with subjects from holy writ, and the walls painted with scrolls, containing legends of scripture.

A remarkably spacious staircase, having balusters and string boards, richly ornamented with carvings, and the newels surmounted with small statues or quadrupeds rampant, generally displaying the insignia of the family, led to the great chamber, where the levee of the baron was held, or at other times set apart for the reception of company in a morning previous to their departure for the sports of the field. It was hung with tapestry,* which was of the richest description, far superior to our modern paper, and even of the most costly manufacture. The tapestry contained representations of the costume of the times, warlike instruments, and hunting diversions, pageantry, and buildings. In the large bower-windows (bay-windows) of this apartment the company would occasionally retire for private conversation; as these bay and oriel-windows generally looked into the court, the ladies were enabled from them to observe the tilting match, or the preparation going on for the chace. At the entrance of these large chambers was sometimes a skreen, having a curtain, as may be been in some of the paintings of the time.

The chimney-pieces were of the altar kind, of the largest dimensions, and generally charged with armorial bearings, but at other times, sculptured with historic or classic subjects; (one of this description may be seen at Bampfylde-house, Bampfylde-street, in the city of Exeter;) within them were the dogs for supporting the logs of wood of which the fires were made: some of these dogs may still be seen at Knowle, in Kent, and at other ancient mansions. The great parlour was used chiefly for conversation, as its name implies, and occasionally for a private dining-room: other apartments were for the use of the ladies, who here carried on their various works of embroidery: the walls were wainscotted, and had small top-pannels, curiously carved with shields; the ceilings were also highly ornamented with various devices of scroll-work. (See a print of Boughton Malherbe, in Kent, illustrating the olden time, which shows one of the most beautiful rooms, perhaps, in the kingdom. This was the seat of the celebrated Sir Henry Wotton.)

These mansions were most conveniently planned for the immense establishments supported by the nobility of the sixteenth century. The Earl of Northumberland, one of the most powerful barons of that period, *and renowned for the battle of Chevy Chase*, retained in his service as many as two hundred and twenty-three persons, as appears by the Northumberland-household book, begun in 1512. Splendid as these noble mansions were, like all sublunary things, they experienced a change, and, at last, neglect and decay:—"the gradual change, which our increasing commerce had at this time contributed to produce in society, occasioned a progressive altertion in the system of economy among the great." Country residences, therefore, became more numerous but less extensive in their plan, more agreeable to our ideas of comfort, and less splendid and ostentatious. "We cannot fail to express the pleasure," "says one of our topographical writers, "with which our fancy dwells on the ancient baronial mansion, encompassed by a great extent of domain, and approached through an avenue of spreading-trees; the magnitude of the building, its simplicity and grandeur of design, its diversity of form in its various parts on its exterior, are far more calculated to strike the imagination, than the most correct model of the Grecian school."—(M.)

* The first manufactory of this kind was established at Mortlake, near Richmond, Surrey, in the reign of Henry VIII. when it was introduced into this country.—(Walpole's Anecdotes of Painting.)

was still followed, but much simplified, and rendered plainer.* The plan of the building now consisted of three sides of a quadrangle, in the centre one was a porch, making the plan that of the form of ⊐, the first letter of the Christian name of the queen. The width of the windows were now carried out to great excess of expansion during this period, so as even to reduce the piers between them to little more than sufficient for the support of the fabric. The battlements and embrasures along the summits of the buildings were now discontinued, and the low obtuse Gothic heads of the windows had sunk into straight lines, and the windows were divided by more mullions and a cross-transum to each: knee-gables still prevailed, and the attic-windows were formed by acute triangular pediments, having brackets and pendants surmounted with pinnacles and finials.

The oriel-windows were various, sometimes angular and at others semicircular, and composed of quarries, or small lights, as they had been in the conventual buildings: sometimes the windows were carried up the whole height of the house in the form of bays, and had floral imagery formed in them by intricate leads, dividing the panes into a multitude of lozenge, angular, and other forms of glass.

Turrets now began to disappear, but the chimney-shafts were still grouped together as in the preceding reign, though generally devoid of ornaments, except mouldings at the bases and capitals at the top, and the chimneys were frequently placed in the external walls: the best examples of this period are, perhaps, that of Hatfield, Herts; Boughton Malherbe, Kent; Melford-hall, Suffolk; Charlcote, Warwickshire, a place Shakespere had occasion to remember in his day; Ingestrie, Staffordshire; Halnaker, Sussex; and, as a chaste model of a mansion and gardens of that era, Oxnead-hall, in Norfolk.†

MIXED ARCHITECTURE, JAMES I.

The Gothic architecture had its dawn, maturity, and decline,‡ such was the case, with that of the Tudors. It commenced with Henry VII., came to its perfection of beauty during Henry VIII. simplified in Elizabeth's reign, and totally changed on the extinction of that family. During the reign of Henry VIII. and Elizabeth, the interior of the Tudor mansions were exclusively finished in the mixed Italian and Florentine styles, brought into this country by Hans. Holbein, in 1526, a celebrated painter in his day, who was both an architect, modeller, carver, designer, and engraver of silver plate.§

* To promote the building of farmhouses and cottages in the time of Henry VIII., 1536, an act was passed which gave to the king a moiety of the profits of lands turned back from tillage to pasture, until a suitable house should be erected. (27 Henry VIII. c. 22.) In the reign of Queen Elizabeth, 1588, penalties were imposed upon the building of cottages for the agricultural population without having four acres of land attached to each, or allowing more than a single family to live in one cottage; (31 Eliz. c. 7,) and in 1597, it was directed, that all houses of husbandry decayed should, within seven years, be rebuilt, and from twenty to forty acres of land attached to them. (39 Eliz. c. 1.) At this time the number of persons without land was so great, that cottages were building in all directions throughout England.

† The internal arrangements at this period, consisted of an entrance-passage running through the house, with a hall on the one side, and on the opposite a kitchen, pantry, and other servants' offices. In Strutt's Manners and Customs, we have an account of the house of Mr. Richard Fermor, at Eastor, in Northamptonshire, and another of that of Sir Adrian Foskew: both of these houses appear to have had these arrangements of rooms and passage; and even in houses of a more ample extension than these, the division of the ground-plan by an entrance-passage through it, was, I believe, universal and a proof of antiquity. Penshurst, in Kent, once the seat of Sir Philip Sydney, still displays this arrangement, which may be seen by reference to engravings in topographical works. At a later period we see the plan was divided by a long passage running through the middle of the house, that led to the hall, where it was then placed; but about the reign of James I. architects began to perceive the additional grandeur of entering the hall at once; such is Holland-house at Kensington, the seat of Lord Holland.

‡ The Gothic architecture, says Horace Walpole, is exclusively ecclesiastical: it was confined solely to religious buildings, and never entered into the decorations of private houses, therefore it does not come under the head of domestic architecture.

§ In the reign of Henry VIII. and that of Queen Elizabeth, through the medium of Italy, Florence, and France, were

In James the First's reign, a complete change again took place in our domestic architecture, the Florentine style now appeared on the exterior of the house as well as in the interior, with a mixture of French and Flemish ornaments, producing a complete amalgamation of three different styles. The gables, by this transition, assumed a totally new form and shape: instead of the triangle they were now trilobed and tortured into convex and concave curves of contrary flexure, but the most general was that of the astragal and hollows, or a convex curve on the top, with a concave curve on each side, crowned with small pyramids. The turrets were finished with bell-formed domes, and sometimes with concave roofs, in the French style, terminating with spindles, cardinal points, and vanes. The chimney-shafts were now become plain, but in clusters turned diagonalwise. The fronts of these mansions had small conventual-windows in the dormitory stories, and wide mullioned windows below; frequently they had bay-windows, made square, projecting outwards, but sometimes hexagonal: they had also frequently a circular oriel-window over the entrance, and sometimes to the wings, extending the whole height of the building.

The plan of those mansions was yet that of three sides of a quadrangle; the entrance was in the centre of the middle of the front, where sometimes a polygonal tower projected, and rose the whole height of the building, and below opening into the hall. There were sometimes wings at each end, which came forward at right-angles, having each of them a colonnade or corridor, formed by small Roman Doric columns, resting on high pedestals; from each of these columns sprang semicircular arches, and above them a cornice, on which was a fleur-de-lis balcony-railing, enclosing a deambulatory. The frieze of the cornice was generally ornamented with small grotesque or mask-heads, intermixed with arabesque floral scroll-work generally, formed of iron. These buildings sometimes stood on a raised terrace, approached by steps, and had a balustrade or open dwarf-wall, of perforated stone-work, and on each side of the flight of steps were pedestals or terminals. In these mansions much of that chastness of style which prevailed during Elizabeth's reign had disappeared, and though her style was made a subject of complaint by Lord Bacon,* who says, "You shall have sometimes fair houses so full of glass that one cannot tell where to come to be out of the sun or cold."† Yet now it became the very reverse, and the architects went from one extreme to the other, for the windows became so contracted as in some instances to produce a heavy and gloomy appearance in the house. The best examples, however, of this style, and which is again fast coming into fashion, are Blicking-hall, Norfolk; Burleigh-house, Northamptonshire; Aston-hall, Warwickshire; Wroxhall in the same county; Westwood, Worcestershire; and Holland-house, Kensington, near London, the seat of Lord Holland, a fine old specimen, built of red brick.‡

FLORENTINE ARCHITECTURE IN ENGLAND.

From the arrival of John of Padua, and his appointment to the office of deviser of his majesty's

imported into England the taste of the artists of each country, which were here employed; hence the resemblance of classic architecture. The French fleur-de-lis ornaments were especially introduced, and, mixed with the ancient style of building, pannels were full of those festoons and other carved work. Terminals, small statues, and balustrades were accompanied by rusticated columns and pilasters of the several orders, having their shafts and pedestals covered with hatched and reticulated ornaments thereon: sculptured brackets, scroll, and cariatides supporting entablatures, were also adopted in the altar chimney-pieces, in the interior, to the porch, and to the centre compartments of the front on the exterior, which may be seen in the doorways at Hatfield-house, Blicking-hall, and Ingestrie, all excellent examples of the age in which they were built; medallions and busts of the twelve Cæsars were also frequently introduced at this period, together with pyramids, globes, obelisks, and allegorical devices, intermixed with shields of arms and family cognizances, forming a style rich and gorgeous in its display of ornaments, but reducible to no definite character.—(M.)

* Bacon's Essays.

† Mr. Lysons mentions a window at Colyton, in Devonshire, containing three thousand two hundred panes of glass.—(Magna Britannia.)

‡ The grammar and mathematical schools at Christ's Hospital, built from designs by the late Mr. Shaw, the celebrated architect of St. Dunstan's church, near Temple-bar, is in this character.

buildings,* in 1544, we may date the introduction of regular Florentine architecture into England. Of the previous history of this architect nothing is known but his cognomen; and the style of his works sufficiently designate him as a pupil of that Lombard school, whose numerous designs added so greatly to the picturesque beauties of the city of Venice,† during the interval between the decline of the Gothic in that part of Italy, and the introduction of the more severe Roman, by Jacopo Sansovino.

As a founder of a school, tradition has assigned to him many works to which he has no claim; but the noble mansion of Longleat, in Wiltshire,‡ in which the spacious and picturesque windows peculiar to English architecture, are in the happiest manner adapted to the intervals of Florentine Italian design of singular purity of taste, may, from external evidence, be confidently attributed to him.

If Italian architecture lost something in its passage from the land of its regeneration, it was not without gaining something in return. The unbroken outlines and simple beauties of the Roman and Florentine schools, were not likely to find much favour in the eyes of nations accustomed to the varied compositions and multifarious decorations of the Gothic; and the northern architects would naturally seek to combine, with the style they were adopting, the most striking qualities of their own. With what success these undertakings were fulfilled in England, such edifices as Wollaton-hall, in Nottinghamshire, and Audley-end, in Essex, may testify;§ especially if their majestic and picturesque towers be compared with the extravagant conical roofs, by which the same effect was attempted in the parallel style of France.‖ Bolsover Castle, in Derbyshire, in which the Anglo-Italian detail is adopted, having an outline of the most commanding aspect, deserves honourable mention, and for the success with which the architect, Huntingdon Smithson, whose father, Robert Smithson, was the architect of Wollaton, has consulted the *genius loci* of the place. The names of these architects, and of many others of the same period, who do honour to their country, have been suffered to drop into obscurity by a succeeding generation, insensible to their original modes of thinking, and their intense feeling for the picturesque as well as the grand, or rather regarding as faults those qualities which their own pedantry renders them incapable of attaining.¶

John Thorp left behind him a number of drawings and designs for country mansions, which threw great light upon the architecture of that period, and more particularly as to the internal arrangements; one of these, is a design for Buckhurst-house, in Sussex; and another was for Sir Walter Raleigh,** all of which are in the museum of the late Sir John Soane. The exterior stories of those

* Vide Edward VI.

† Several of the public buildings in the city of Venice are in the Arabian style. In Florence the palaces are built of great rough-hewn stones, not laid smoothly on the front, but projecting beyond the surface of the wall, which fashion of building is called the rustic manner.

‡ Longleat, the seat of the Marquis of Bath, is the earliest specimen of Italian Florentine architecture in this kingdom. It was begun in 1567 and completed in 1579, after designs obtained in Italy by John Thorp, who has by some been supposed to be the same John of Padua, so named from his having studied in the city of that name.—(Pictorial History of England, book vi. chap. v. p. 45.)

§ Audley-end was built between 1603 and 1616, by Bernard Jansen, a Flemish architect of great repute; but the model, still preserved by Lord Braybrook, was procured from Italy. And here we shall have the opportunity to notice the common, but erroneous, way of designating all buildings erected during the Tudors as Tudor edifices, because they happened to bear that date, as if a Roman mansion built in England during Henry VIII. or Elizabeth's reign, must be a Tudor edifice. And, on the contrary, do we see the architecture of James I. often classed with that of the Elizabethan.—(B.)

‖ The British Museum is an example in the French style, having been built by a French architect, who has closely followed the character of the chateaus in his own country. Roofs concave, convex, bell-form, and truncated are true characteristics of the French style.—(B.)

¶ Dalway's Observations on Architecture.

** The house in which Sir Walter Raleigh was born, at East Budleigh, near Exmouth, in Devonshire, still exists. It is in the Tudor character.—(See a print in the Penny Magazine, by the author of this work.)

Florentine mansions were generally decorated with pedestals, pilasters, and cornices in great confusion; the parapets of the main building terminated with balustrades, and the square towers at the angles of the mansions terminated with pyramidal scroll-work, tripods, statues, and obelisk pinnacles. The entrance of the house was approached by a double flight of stone-steps, and with a balustrade on each side. The ceilings in the interior were formed by ribs, and tracery of various designs. Laneham says, "with great diamonds, rubys, and saphers, pointed-tabled rock, and round, garnished with their gold."* Some of these ornaments were executed in papier-maché, which material, though for years used in our theatres in dress, forming caps, helmets, &c., has again come into use in the carved decorations of our dwellings, such as flowers for ceilings, carved mouldings for doors, &c.† The skreen front of Northumberland-house, in London, built by Gerrard Christmas, is in this style; the oriel-window over the entrance-gateway, which is very beautiful, is that of James I.

REVIVAL OF ROMAN ARCHITECTURE IN ENGLAND.

The Florentine style prevailed in England but for a short time, when it was eclipsed by the revival of the ancient Roman architecture, which rose, phœnix like, from its ashes, and again took its lead, after having been banished above eleven centuries and a half. Its revival at this period to new energies is due to the talents and genius of Inigo Jones, who rose up to brighten the glory of England's architectural fame. He was the greatest architect England had since the revival of the arts, and may be considered the best and most perfect imitator of the Palladian style.‡ Under the auspices of some noble patrons, he travelled through Italy in the early part of his life, where he studied the models of the ancients, and cultivated the style and principles of Alberti, Palladio, Vignolo, and Scammozzi, from whose works he formed that taste, which, in returning from Italy, he diffused, and caused to be generally adopted throughout his native country, until his death, which occurred in the year 1651, which it is said was occasioned through grief for the fate of his friend and patron, the unfortunate King Charles I.§ The edifices that serve to immortalize his name are those of Greenwich Hospital, White-Hall Banquetting-house, Pishobury, Hertfordshire; Gunnersbury, Middlesex, and Coleshill, Berkshire.‖

* Laneham's Hist.

† Vassare says, that "Michael Angelo, who was a Florentine, gave to Menigello, a very indifferent painter, a model of a crucifix, beautifully executed, from which Menigello formed a mould, and made casts with thick paper and other composition, and sold them to the country people, who were Catholics; this shows that the art of working papier-maché was known in Italy before the middle of the sixteenth century."—(Duppa's Life of Michael Angelo.)

‡ Inigo Jones was born near St. Paul's, in London, in the year 1572, was an apprentice to a joiner, by which he first acquired an accurate knowledge of the mechanical and subordinate part of his profession. His superior talents early attracted the notice of a munificent patron of the arts, Thomas Howard, Earl of Arundel, at whose expense he explored Italy, and enriched his mind by the contemplation of its architectural treasures. Christian IV. invited him to Denmark, from whence he followed the train of the Danish monarch back to his native country, where, as soon as he arrived, was appointed architect to the queen of James I., a sister of the King of Denmark; and afterwards to King Charles I.

§ There is an amusing anecdote told of Inigo Jones, that shows him to have been witty in a moment when another would have been overcome by vexation. "When he was dismissed from the office of architect to the board of works, (on which occasion he wore, as was usual, a livery,) on the fall of his patron Charles I., he said, 'Well! then it is no longer In I go Jones, but out I go Jones.'"—(Buck's Anecdotes.)

‖ The inclosed quadrangle, or the more recent half H of Henry VIII., were now discontinued for a less diffused plan, except where the offices were connected by a quadrant, colonnade, or piazza, widely differing from the plan of the ancient mansion, originally borrowed from that of the monasteries. The elevation was now varied; the offices on each side were kept low, and the centre elevated to admit the stately portico, having the tympanum of its pediment filled with the full heraldic achievements, the badge of an earlier age: armorial bearings were also introduced, but in cartouche shields of Italian origin, over the doors and chimney-pieces. The large hall, the scene of former festivity, with its carved, timbered roof, and long table, was entirely excluded in this new arrangement; the present hall of entrance, and communication with the different suits of apartments, being of totally different appropriation, and deriving its origin from the Italian sola. The mullioned window, with its small quarries or panes of glass, was succeeded by the sash-frame, whence, as well as from the raised terrace environing the building, the beauties of the surrounding country might now be viewed.—(M.)

The Roman style continued to be adopted in England for some time after his death, and by a distant successor, Sir Christopher Wren, another luminary, who was the son of a clergyman in Wiltshire: he first developed his genius in the art, in 1663, and encouraged the cultivation of ancient classic taste, until his death in 1723. He possessed advantages over his predecessor, by the benefits he had received from a superior and college education: he was at once a perfect gentleman, a refined classic, and an astronomer; a great geometrician, and an eminent architect, even to boldness, no one understanding better than he did the principles of construction and stereometry. To attest the latter, it is only necessary to mention, though these buildings do not come under the head of domestic architecture,* St. Paul's Cathedral; St. Mary-le-bow, in Cheapside; St. Stephen's, Walbrook, near the Mansion-house, and St. Dunstan's, in the East, Thames-street, London, all masterpieces of his consummate skill.†

The above two names as architects will never fail to excite our admiration; but we may state, that of the same school, and near the same period, England is entitled to enrol the names of Sir John Vanburgh, and Gibbs the architect of St. Martin's Church, in London, among the men who have superlatively shone in the science of design, and the construction of Roman classic buildings. The former having been the architect of that national trophy, Blenheim-house, at Woodstock, in Oxfordshire; a splendid mansion, erected in the reign of Queen Anne, which will ever be admired as long as the nation retains a taste for the grand and the picturesque.

FLEMISH ARCHITECTURE IN ENGLAND.

When William, Prince of Orange, became king of England, A.D. 1689, we had a different style of architecture imported here from Holland, which prevailed among us, as well as their fashions of landscape and culinary gardening.‡ The Flemish architecture, it may be observed, had been in this country before the time of William the Third's reign; but then it was confined chiefly to towns, and those in which the merchants from Amsterdam and Antwerp resided.§ In the town of Topsham,

* There is a house in Cheapside, which Sir Christopher Wren built for his own residence, well worthy observation. It is now inhabited by Mr. Tegg, the bookseller.—(B.)

† That this great architect was gifted to a superior degree, and possessed the purest taste, the beautiful outline of the dome of St. Paul's, in conjunction with the campanille towers on the west front, will sufficiently convince us; but his too frequent employment of the carvers, Gibbins and Bird, and by their means loading the front with a profusion of petty ornaments, as festoons and pendants of flowers, vases, and masks, tended to impair and disfigure the chaste outline of the architecture, and to fatigue the eye where it ought only to dwell with pleasure.—(M.)

‡ On the accession of William III., the nobility of this country obtained their ideas of pictorial beauty from Holland, and their country residences accorded with the taste of their prince. The façade of the mansion, built of brick of a fine red colour, was usually accompanied with an equal distribution of stone, sometimes without uniformity or regularity of design; the roof, of great height, admitted two tiers of dormer-windows, like the stadtholder's house at Amsterdam, and rose from a heavy projecting cornice, which occupied the situation of the balustrade. Dalkeith-house, in North Britain, a noble architectural specimen of this period, was erected after the model of a palace of the Prince of Orange, at Loo, in Guelderland. Those mansions were then tastelessly surrounded by a space levelled to a dead flat, and divided by canals; the slightest irregularity of ground was converted into a terrace, ascended by stone steps; broad gravel-walks were distinguished by ranges of trees, of impenetrable hedges of holly and of yew, with a high wall, bounded by the landscape.—(M.)

§ There had been discontents among the manufacturers in Flanders, in 1331, during the reign of Edward III., who took advantage of this to invite them as settlers in his own dominions.—(Rymer's Fœd. tom. iv. p. 491.) Fuller draws a quaint picture of the inducements thus held out to the Flemings. "Here they should feed on fat beef and mutton, till nothing but their fullness should stuff their stomachs; their beds should be good and their bed-fellows better, seeing the chiefest yeomen in England would not disdain to marry their daughters unto them, and such the English beauties that the most envious foreigners could not but commend."—(Fuller's History.) During the reign of James I., 1585, Antwerp was captured and sacked by the Spaniards; the Flemish merchants then came over and settled in this country in abundance, and partly because England was then ignorant of most manufactures; from this time our manufactures may be said to date their commencement.—(Anderson's Commerce.) By these men, and on their various tastes, was formed that grotesque style of carved household-furniture which is at this time again so highly esteemed, and sought to be revived.—(H.)

a sea-port near Exeter, in Devonshire, there are still to be seen many houses on the strand in the Flemish style; the chief characteristics of which are the step gables and square clustered chimneys, separated by apertures between each, and built with small yellow Dutch bricks, known as clinkers. Several houses may also be seen in the paintings and prints of the Dutch masters, as Teniers, Hobbima, and Wovermans. Sir Peter Paul Ruben's château at Antwerp, in which place he was born, is in this style, and a good specimen.*

Glamis Castle in Scotland, the ancient seat of the Thane Macbeth, on which Shakspeare founded one of his most popular tragedies, is a fine specimen of Flemish architecture. It has the step gables, and on the angles at the top of the building, round, pendent, conical pinnacles—such as we find in most of the Dutch country-houses, and in the cities of Antwerp and Amsterdam, and also in those of the Lombard architecture. The best modern country-house in this style of architecture, is that of Lifton-park, near Tavistock, in Devonshire, the residence of J. Rendall, Esq., M.P. Abbotsford, in Scotland, the seat of the late Sir Walter Scott, the celebrated novelist, contains a mixture of this style.

GRECIAN ARCHITECTURE IN ENGLAND.

In the reign of George III., Messrs. Stuart and Revett, who had visited Greece to inspect the works of that classic people, on their return home published those monuments of taste which they met with at Athens, containing all their details, with the dimensions of the parts, and thus produced a work of attraction for our architects. But England was soon after this time too much engaged in a war with France to attend to the improvements of our domestic architecture, until the reign of George IV., (which we may fairly say was the Augustan age in England,) when architecture burst forth with a splendour unequalled in this country, both in our public and private buildings. Old and dilapidated houses in the metropolis were destroyed, and new streets formed; the Regent's and St. James's Parks were laid out, and splendid buildings began to be erected around them, which at once called forth the talents and tastes of our architects to new designs. The Grecian architecture, now combined with the Roman, was considered the most suitable, and thus became generally adopted throughout London, in the suburban villas, and in the distant environs. This style is too well known to need description, to those who have seen those noble and majestic columnar piles which now grace the fronts of our theatres, institutions, club-houses, and other public buildings. We shall therefore only observe, that of those architects who have peculiarly distinguished themselves in this style, we may name, without partiality, the late William Wilkins, Sir Robert Smirke, Mr. Cockerell, Mr. Inwood, and Decimus Burton. But this progress in Grecian architecture has been entirely owing to the discovery of the calcareous cement Roman Puteolanum, or Pozzolanum,—so called from Puteoli (the modern Pozzuoli) near Naples, where it was first used,—oil mastic, and various artificial stones, without which the expense of erecting these designs would have been too great. As examples of Grecian taste in the metropolis, we may name first, though not coming under the denomination of domestic architecture, St. Pancras New Church, then the London University, near the New-road, the new National Gallery, Exeter Hall, Covent-garden Theatre, the new Post-office, and the entrance to Hyde Park.

SUMMARY OBSERVATIONS.

During the reign of George III., it was made a subject of complaint among classic travellers, who had visited Rome and Greece, that our palaces and municipal buildings were wretched structures, and that classical architecture had been greatly neglected in our metropolis. I shall quote one for our

* See a painting of it in the British Gallery, by himself. And further, P. Vingboon's Flemish Architecture, anno 1638.

purpose that will suffice:—"I feel," says Eustace, (in his Classical Tour,) "some regret at being obliged to acknowledge that the metropolis of the British empire, though the first city in Europe, and I suppose in the world, for neatness, convenience, and cleanliness, is yet inferior in architectural embellishments to most capitals. This defect, without doubt, is owing in a great degree to the nature of the materials of which it is formed, as brick is ill calculated to receive the graceful forms of an Ionic volute or a Corinthian acanthus; while the dampness of the climate is not so good for stucco, and which seems to preclude the possibility of applying it to the external parts with permanent advantage, as at Pompeia. But some blame may justly be attributed to our architects, who have neglected the models of antiquity for spurious ideas of their own, and in edifices where no expense has been spared, have displayed splendid instances of tasteless contrivance and grotesque ingenuity. But it is to be hoped that the taste and industry of the British nation will ere long triumph over this double obstacle, inspire artists with genius, teach even bricks to imitate marble, and give to the seat of Government, and capital of so mighty an empire, a becoming share of beauty and magnificence. Augustus found Rome of brick, and in his last moments boasted that he had left it of marble; may not London hope at length to see its Augustus?"

We shall now present a different picture in the next reign, that of George IV., showing that those hopes have at last been realized. "I went," says another writer, Mr. Rush, "to London again on a short visit in 1829. An interval of but four years had elapsed, yet I was amazed at the increase of London. The Regent's Park, which, when I first knew the west-end of the town, disclosed nothing but lawns and fields, was now a city; you saw long rows of lofty buildings in the outward aspect magnificent. On the whole space was set down a population of probably not less than fifty or sixty thousand souls. Another city, hardly smaller, seemed to have sprung up in the neighbourhood of St. Pancras Church and the London University. Belgrave-square, in an opposite region, broke upon me with like surprise. The road from Westminster-bridge to Greenwich, exhibited for several miles compact ranges of new houses. Finchley-common, desolate in 1819, was covered with neat cottages, and indeed villages: in whatever direction I went, indications were similar. I say nothing of Carlton-terrace, for Carlton-house was gone, or of the street of two miles from that point to Park-crescent, surpassing any other in London, or any that I saw in Europe. To make room for this new and spacious street (which contains various styles of architecture), old ones had been pulled down, of which no vestige remained; I could scarcely, but for the evidence of the senses, have believed it all."* And now, in 1840, we may further notice the magnificent houses along the Strand, King William-street, running from the Monument to Finsbury-square, and splendid houses in the Bayswater-road; but when we behold the more magnificent Italian columnar edifices on the east side of the Regent's-park, and the crescent on the west, where the houses are crowned with octagonal domes, we stand astonished with admiration. The historian of the Decline and Fall of the Roman Empire remarks, that the description composed in the Theodosian age of the many stately mansions in Rome, might almost excuse the exaggeration of the poet, that Rome contained a multitude of palaces, and that each palace was equal to a city. Is the British metropolis advancing to this destiny?

ASSYRIAN ARCHITECTURE.

In our enquiry into the domestic architecture in Asia, we find the Assyrians were the first people

* Rush's Residence at the Court of London. The Regent's and St. James's Parks, and the streets communicating with each, were laid out by the late John Nash, architect to Buckingham Palace; a man possessing great taste for the grand and the picturesque.—(B.)

that formed themselves into a monarchy, therefore the first in order of renown.* This empire being founded by Nimrod, as soon as men had sufficiently multiplied, and were forming themselves into tribes after the Deluge, he collected them together on the plains of Chaldæa, where he built the city of Babel, and thus entirely changed the political existence of those who had been living a wandering and pastoral life.† The epithet 'mighty hunter' applied to this prince in Scripture, (Gen. xv. 9.) seems to mean no more, than that this chief, like most of the heroes of glorified antiquity, addicted himself to the hunting of wild beasts, and thus acquired qualities adapted to a warfare with men, his success in which was ensured by the number of bold and exercised men who had associated with him in his active occupation.‡ The city of Babel, afterwards known as Babylon, which Nimrod built, was of vast extent, and surrounded by a high and thick wall, on which were erected watch-towers. As to the houses in this city, we are informed that there was an interval between them to prevent general conflagration, and that they occupied only a portion of the city, namely, ninety stadia.

Of the houses no remains can now be found, but Dionysius of Halicarnassus informs us that the earliest of them were towers; and Sir William Drummond thinks, that a Babylonish house on this plan was probably like a Chaldaic hieroglyph.§ They are square, says he, of two stories high, with a door in the centre, and three windows in the floor above, resembling the tower-houses at Thebes. At Babylon, Mr. Buckingham, when there, was of opinion that the houses were flat-roofed,‖ and covered with reed, bitumen, and brick, examples of which he met with in the ruins of that city, and which were so cemented together that he found it impossible to separate them.¶

* All countries and ages of the world, ultimately experienced the advantage of this one important truth, that society is the basis of all knowledge, the spring and source of arts and sciences which have been promulgated, improved, and handed down to us by succeeding ages. Egypt and Greece had their public schools, which taught the true principles of philosophy: Pythagoras, Plato and others laid their foundations, and Seneca, Cicero, and the Roman philosophers built their studies on them; and later times have produced innumerable instances of the success and progress of learning in the seminaries of literature. The ants form a republic and the bees a kingly government, it is natural that men should associate together; they were also better protected.—(M.)

† During the first ages after the Flood, (2348 B.C.) says Sir William Drummond, men must have lived in tents, as did the antediluvian patriarchs, and been chiefly dependent for subsistence on the produce of the chase, on the flocks and herds. (Sir William Drummond's Origins.) But that many of the Asiatics lived in caves, we have both the authority of Scripture and the testimony of travellers to prove. In this manner lived the Edomites,—"O thou that dwellest in the clefts of the rocks." (Jeremiah, xlix. 16.) Lot went up out of Zoar, one of the cities of the plain, (now the Dead Sea,) and dwelt in a cave in the mountains, as the angels had directed him. (Genesis, xix. 30.) The cities of the plain were Sodom, Gomorrah, and Zoar; and we may infer that, as no fragments can now be found of them, they were but small towns built with brick or mud, without any pillars, or, if there were any, probably of wood; therefore a few days' submersion would convert them into heaps of rubbish, and dissolve them in the waters, not to speak of the previous overthrow and burning which it experienced. (See Genesis, xix.) It is still a common practice in the East for the inhabitants of towns and villages to hasten for safety to the mountains in times of alarm and danger, or at least to send their valuable property away. The moveables of the Asiatics in towns and villages are astonishingly few, compared with those which the refinements of European life render necessary. A few carpets, kettles, and dishes of tinned-copper comprise the bulk of their property, which can speedily be packed up, and sent away on the back of camels or mules, with the women and children mounted on the baggage. In this way a large village or town is in a few hours completely stripped, and the inhabitants, with everything belonging to them, can place themselves in safety in the mountains.—(Tavernier's Travels.)

‡ Milton says of Nimrod, "Hunting, and men not beasts shall be his game. (Paradise Lost, book xii. line 30.) The principal towns of Nimrod's kingdom were Babel, Erech, Accad, and Calneh, all situated in the land of Shinar, or Singar. —(Gen. x. 10.)

§ Origins, ii. 343.

‖ At Jerusalem, in Palestine, in the time of David, it is well understood that the houses were flat-roofed, for we are told, that he arose from off his bed and walked upon the roof, from whence he saw Bathsheba. (2 Sam. xi. 2, 3.) The roofs being flat, a house situated on an elevated spot, as the regal palaces in the East were, a person was enabled from their summits to overlook those around it. These roofs had parapets, and were their summer bed-rooms, with no other canopy but the heavens. But among the king's subjects, prudent persons were cautious, who inhabited elevated situations, of inspecting the proceedings of their neighbours; for in many places in the East, a man would be thought perfectly justified in shooting a too prying person through the head, a thing which does sometimes happen. Mr. Buckingham, while at Bagdad, informs us, that at daybreak (the time at which the inhabitants of the East rise) he saw from his sleeping-room, on the roof of the house, several people on those houses around him lying in bed, and others up and dressing, and among those were females; but he was cautious not to let it be observed.—(Travels in Mesopotamia.)

¶ Buckingham's Travels in Mesopotamia.

Pliny says that Babylon was sixty miles in circumference, that its walls were two hundred feet high and fifty thick ;* which height and thickness seem improbable ; but its length may be correct, as Herodotus assures us that it was four hundred and eighty furlongs in circumference, that it was full of magnificent structures, and that it had a hundred gates of brass,† which proves that the fusion and mixture of metals were known, and that various arts dependent on design were even practised.‡

All ancient historians agree that a splendid palace was erected at Babylon, by Semiramis, the wife of Ninus, in which she caused the images of all kinds of animals to be sculptured in bold relief on the walls, and which were coloured after nature.§ These figures they say were more than four cubits high. In the middle appeared Semiramis, piercing a tiger with her dart, and near her, her husband Ninus, slaying a lion with his lance. In another part of the same palace were the statues of Jupiter Belus, Ninus, Semiramis, and her principal officers of state.‖ From this statement, it appears that splendid architecture and the arts were early known and practised among the

* Plin. lib. v. c. 26.

† Herodotus's description of Babylon shows that it consisted of an exterior wall with turrets, and a second wall within of less width; houses of three or four stories high, forming streets straight and parallel. The temple of Jupiter Belus was a square pyramidal structure within the enclosure and solid tower, measuring a stadium both in width and height, upon which was a second, then a third, then a fourth, and so on to the number of eight; the ascent being by an inclined path on the outside of the tower, with resting stairs midway, and the summit crowned by a large temple to Belus.—(Diod. 178. 180.)

‡ Diod. lib. ii. p. 114. 120.

§ Friezes of cornices containing birds and animals, depicted in various colours, have been discovered in Egypt, where the colours are as fresh as if just done, though no doubt upwards of two thousand years old; they have been brought to this country and are now to be seen in the British Museum.—(B.)

‖ It was Nebuchadnezzar who improved and aggrandized Babylon, until it became that great and magnificent city which the ancient world regarded with equal wonder and admiration; though the Greek writers attribute this wonderful rise to two queens, Semiramis, who lived before him, and Nitocris, who reigned after him. But the native historian Berosus, together with Megasthenes and Abydenus, expressly attribute it to this great monarch. Indeed, these could only have been accomplished after the fall of Nineveh, and when Babylon had become the seat of a great empire, neither of which events happened till the time of Nebuchadnezzar. Of this golden city in its palmy state, we observe that the Euphrates passed through it, dividing it into two parts, of which that on the western side of the river exceeded in magnificence, and comprehended most of the new improvements. According to Herodotus, the city, as a whole, was a perfect square, each side of which was equal to one hundred and twenty stadia, and consequently its circuit to four hundred and eighty, which (Greek stadia being of course intended) would make not much less than fifty miles. This extent may seem enormous, but when we see how our own metropolis is spreading around, and may be expected at no very remote period to reach the same dimensions, and still more, when we are told that the city was very scantily built, and much of the ground enclosed by the walls was left vacant or laid out in cultivated fields and gardens, it may very well be doubted whether it contained a population equal to that of the present London, or comprehended as large a number of buildings. However surprising therefore the account may seem in the first instance, it is much less incredible than has sometimes been supposed.

A deep ditch, lined with brick-work and full of water, surrounded the city; and as the soil dug out from it furnished the bricks with which the wall was built, some idea of its capacity may be formed from the alleged dimensions of the wall, which was two hundred royal cubits high by fifty in thickness. These bricks were baked in a furnace, and cemented with hot bitumen. In the wall there were a hundred gates, twenty-five on each side ; all these gates were of solid brass, and of prodigious size and strength ; besides which there were in the wall lining the river, smaller gates of the same metal, from which steps conducted down to the stream. Between every two of the great gates there were three watch-towers, ten feet higher than the walls, with four such towers at each of the four angles of the wall, and three more between each of these angles, and the next adjoining gate on either side. There were, however, but two hundred and fifty towers in all, as there were none on that side next the morasses, rendered unnecessary by the protection which they afforded. This grand square was divided into twenty-five grand streets, which intersected each other, dividing the city into six hundred and twenty-six squares. Each of these streets passed quite across the city in a straight line, extending from a principal gate on one side to another on the opposite side. The vast squares, formed in so extensive a plot by the intersection of the streets, were not built upon but left void, and laid out in fields, gardens, and pleasure-grounds ; and besides this, the houses which lined at the same time the streets and the squares, stood much apart from each other, which serves to show how thinly the city was built. The houses are noticed by Diodorus Siculus, Herodotus, and Strabo as being three or four stories high, and adorned with all the splendour and magnificence of oriental taste.

But what is all this sumptuous magnificence! Babylon, in consequence of her idolatry, and her king Nebuchadnezzar plundering the temple of Jerusalem of its golden vessels, and leading the ten tribes into captivity, was doomed to fall. Thus saith the Scriptures : (see Jeremiah, l. 44. 53) : "I will punish Bel in Babylon, Though Babylon should mount up to heaven," (alluding, perhaps, to the tower of Babel,) " and though she should fortify the height of her strength, yet from me shall spoilers come unto her, saith the Lord " Thus we see its doom was settled and afterwards fulfilled by the Medes and

Babylonians, Chaldæans, and Assyrians; the latter even disputed the palm of antiquity with the Egyptians, their formidable rivals in the glory of erecting stupendous edifices.* The Babylonish buildings, which were discovered by the most early travellers, Herodotus and Strabo both assert that they were in the Egyptian character, particularly their sculptures. Those people were compelled to use bricks,† as their country possessed no stone, and of which material the walls of Babylon were built, a work which has been chronicled among the seven wonders of the world: its equal was Nineveh.‡ But what is the result of those works of human greatness? The Assyrian empire has fallen, Babylon and Nineveh are no more; the materials of those structures being fragile, they are crumbled into dust, and the latter city entirely swept away by the besom of time. Babylon is infested with dangerous reptiles, and the thistle and the rank grass have sprung up and now wave over its prostrate walls.§

Persians under Cyrus, while Belshazzar was king of Babylon. It was besieged for two years, and at last taken by stratagem. Cyrus had been informed by one of the natives that the river passed through the city, and that it might be turned off from its course by sluices, and that there was to be a great annual festival kept in the city at a certain time, when the inhabitants were accustomed to spend the night in all manner of debauchery and drunkenness. He thought this offered a good opportunity: he therefore addressed his troops before he turned the river from its course, by which he was enabled to enter the city at each end, in which he alluded to their principal danger: he said that if the inhabitants retired to the house-tops, the best course would be to spoil their doors by setting them on fire, as their porches were very combustible, being made of palm-wood and coated with bitumen. Towards evening he opened the stream-dam of the trenches communicating with the river, by which means the stream was diverted from its proper course, and the channel soon became fordable. The Persians entered at each end, and the city was taken by surprise.—(Herodotus, Clio, 191; Xenophon, Cyrop. vii. 5.)

* The Tower of Babel, a stage structure, still exists in ruins, although its architectural features are entirely obliterated. —(Buckingham's Travels in Mesopotamia.)

† Genesis, xi. 3. The Babylonish bricks were usually twelve inches square by three inches in thickness, and on them were portrayed characters and animals: see Ezekiel, iv. i.

‡ As to the history of Nineveh, it appears to have been founded by Assher and enlarged by Ninus II., B.C. 1250, when it became the greatest city in the world, and wealthiest in the East. The best account which we possess is that furnished by Diodorus, who states, that Ninus having surpassed all his ancestors in the glory and success of his arms, resolved to build a city of such state and grandeur; that it should not only be the greatest then in the world, but such as no sovereign coming after him should be easily able to exceed. Accordingly, having brought a vast number of his forces together, and provided the necessary treasure and everything which his design required, he built near the Tigris a city very famous for its walls and fortifications. It was on the plan of a parallelogram, its length being one hundred and fifty stadia, its breadth ninety, and the circumference four hundred and eighty. Diodorus says that the founder was not deceived in his expectations, for no one ever after built a city equal to it for the extent of its circumference, and the stateliness of its walls. These were one hundred feet high, serrated or with zig-zag battlements, and so wide, that three chariots might be driven upon them abreast. There were one thousand five hundred towers upon the walls, all of them two hundred feet high. Ninus appointed the city to be chiefly inhabited by the richest of the Assyrians, but freely allowed people from all nations to dwell there. He also granted to the citizens a large surrounding territory, and gave his own name, Ninus, to the city. (Diod. ii. 1.) It may be added, that Strabo and other ancient writers say, that Nineveh was more extensive than even Babylon. If we compare the dimensions assigned by Diodorus to Nineveh, with those which Herodotus, and Pliny after him, gives to Babylon, this is not true; both have four hundred and eighty stadia of circumference. But if we take any other measurement of Babylon than that of Herodotus, its circuit becomes ten or twelve miles less than that which Diodorus gives to Nineveh; for Ctesias makes the circumference of Babylon but three hundred and sixty stadia; Clitarchus, three hundred and sixty-five; Clintis, three hundred and sixty-eight; and Strabo, three hundred and eighty-five. Its circuit therefore appears to have been between forty-eight and sixty miles, spreading over an area nearly six times the size of that of London.

We are not to suppose that the whole of this vast enclosure of Nineveh was built upon, any more than that of Babylon. It was no doubt thinly built, with the houses much apart as at Babylon, and contained extensive plantations, parks, gardens, fields, and open grounds, as did the same city, and as the larger oriental towns still do. Moscow is built in this manner.

Fall of Nineveh.—As to the fall of Nineveh, which city Jonah prophesied against, and which was afterwards accomplished, it was merely performed by the revolt of the Babylonians and Medes, who came up against it. We are told by Diodorus, that in the plans for the defence of the city, the king of Assyria was greatly encouraged by an ancient prophecy that Nineveh should never be taken until the river became its enemy. But that after the allied revolters had besieged the city for two years, without effect, there occurred a prodigious inundation of the Tigris, when the stream overflowed its banks, and rose up to the city, and swept away about twenty furlongs of its great wall. When the king heard this unexpected fulfilment of the old prediction, he was filled with consternation and despair; he gave up all for lost, and that he might not fall into the hands of his enemies, he caused a large pile of wood to be raised in his palace, and heaping thereon all his gold, silver, and apparel, and collecting his eunuchs and concubines caused the pile to be set on fire, whereby all these persons, with himself, his treasures, and his palace, were utterly consumed.

§ See Isaiah, xiii. 19.; and an interesting work, Keith on the Prophesies.

ARCHITECTURE OF THE EGYPTIANS.

This kingdom was founded by Menes, the son of Cham, and grandson of Noah, about the time the kingdom of Assyria was founded by Nimrod, which people have continued in a direct descent to this day. As Egypt is styled the cradle of the sciences, and as the Egyptians (whose works still remain) were supposed by some to have been the inventors of architecture, it is but justice to give them due credit for that sublime genius with which they were endowed—a genius that operated from the earliest period, when the present world was in its infancy—and to aim in all things, as they did, at the grand and sublime, and to be intent on real systems and beauties, without deviating in the least from that noble simplicity, in which the highest perfection of the art consists. Yet it cannot be supposed that we can trace the origin and progress of the domestic architecture of this people at this period of time from its source, without sufficient remains or authorities. Herodotus, the father of history, and who visited Egypt, has described their temples but not noticed their domestic structures; and Manetho, who is the only native Egyptian historian known to us, has not given us the least account of their form or plan, and the structures themselves are now all crumbled into dust, unless we can suppose those to have been primitive dwellings which Belzoni discovered buried in the sands, and which he says were flat on the top, and covered with layers of canes, bitumen, and brick, resting on joists of the palm-tree.*

In those he also discovered staircases, which implied that they were more than one story high. Diodorus Siculus affirms that they were four and five stories as early as the times of their founder.† That the houses in Egypt were generally built of brick material we have the authority of Scripture, for we find the Jews, in the time of Moses, were compelled to make bricks for Pharaoh under cruel taskmasters.‡

* As the fishermen had brought their hatchets, I caused two or three of these houses to be uncovered, and then removing the layer of bricks we found a layer of clay, and then a layer of canes, which were nearly burnt, and, lastly, under the canes, some rafters of wood forming the ceiling. (Belzoni's Researches in Egypt, vol. ii. p. 159.) The roofs of the oriental houses were always flat, and as the people of the East walked on them, Moses gave to the Israelites orders to have them battlemented on the side towards the garden as well as towards the street, to prevent the loss of life. (See Deuteronomy, xxii. 8.) Those roofs, we are informed by travellers who have seen them, are generally composed of reeds, branches, and twigs, fixed over the rafters; the whole trodden into a somewhat compact mass, and covered externally with earth, clay, or plaster, more or less tempered in different countries, and sufficiently calculated, with proper care, to keep out the infrequent rains of climates naturally dry. As the roof is much resorted to by the people on various occasions, particularly to enjoy the cool of the evenings, and to sleep in the open air during the summer nights, a parapet, to prevent the danger of a fall, is evidently necessary; in fact, most eastern houses have parapets built with brick or mud, and of various heights, from three to six feet, which not only prevents this danger, but serves, in some degree, of privacy to his open bedchamber.

The houses of the ancient Greeks and Romans were also built with flat roofs, so that we read of their walking and taking the air upon them, and also standing there to see the show and public processions. Indeed, the custom of sleeping on the house-top was not unknown, or the danger from their being without parapets. The accident which happened to Elpenor, in Homer (Odyssey, x.) might easily occur in an oriental house wanting a proper defence on both sides of the roof. This person,

> "Seeking cooler air, which, overcharged
> With wine, he needed, on the palace roof
> Of Circe, slept apart from all the rest:
> Awaken'd by the clamour of his friends
> Newly arisen, he also sprang to rise,
> And in his haste, forgetful where to find
> The deep-descending stairs, plunged through the roof;
> That shock, his neck-bone parting at the joint,
> Sustain'd not, and his spirit sought the shades."—(Cowper's Translation.)

† Diod. Sic. lib. i. s. 45. There is a small model of an Egyptian house in the British Museum of three stories high; the walls inclined inwards, so that the house is narrower at the top than below; the walls are rusticated, to show alternate white and black stones, and the house has a flat roof. There are three windows on a side, latticed, and a door near the angle to each front.—(B.)

‡ Exodus v. All the bricks in Egypt at this early period were burnt by the sun, or sun-baked; not in kilns or

In the grand description by Denon, the French architect, who visited Egypt, are plans of private houses at Karnac, near Thebes ;* these, if original—which is hardly probable—appear to have been quadrangular like our colleges, with rooms on the four sides of the enclosed court. In the centre of the square, in one of them, are columns situated round a well or oblong cistern. At the present day, however, the Egyptian houses, or rather those of the Mamelukes, have windows in the ground-floors facing the highways, a custom by no means usual in the East; and in the quadrangular court there is a corridor all round, with windows over each door for lighting the rooms within. The upper part of the houses is generally set apart for pigeons, which are kept here by thousands.† The Nubians and modern Egyptians, Wilkinson says, frequently imitated in their houses the inclined style or sloping sides, peculiar to the Egyptian temples which he saw in the sculptures at Thebes.‡

Thebes, the origin of which city is veiled in the obscurity of time, contained, perhaps, the most astonishing assemblage of edifices ever erected by the hands of men—although those ancient cities are more to be considered for their public buildings and the immense walls which surrounded them, than for their private dwelling-houses. The circumference of the walls round Thebes is said to have been thirty miles, and of immense thickness and height. Homer says it had also a hundred gates.

"Thebes' unrivall'd walls contain
The world's great empress§ on the Egyptian plain,
That spreads her conquests o'er a thousand states,
And pours her heroes through a hundred gates,
Two hundred horsemen and two hundred cars,
From each wide portal issuing to the wars."

(Homer's Iliad, Book ix. 504.)

When the French invaded this country during the late war, under Bonaparte, and were on their march round a mountain, the army, on first beholding the scattered ruins of Thebes, halted of its own accord, and the soldiers, with one spontaneous movement, clapped their hands.‖

As to the palace which once existed at Thebes, in all its pomp, splendour, and glory, we may form a tolerable idea of its magnificence (says Mr. Wilkinson) from the sculptures in the ruins of

clamps; nor were they the property of private individuals, as in England, but were the property of the Egyptian government, acting under Pharaoh, and which were a great source of profit to the revenue. They were always stamped with the king's or with a pontiff's name, (which people always composed his government,) and many of them had figures of animals and birds on them, and various creeping things, which were depicted in various colours.—(Wilkinson's Thebes.)

* Denon's Egypt, vol. iii. pl. 16.

† Belzoni's Researches in Egypt.

‡ Wilkinson's Egypt. p. 430. The greatest opponent to any deviation from the prescribed rules of Grecian art, (which we shall treat of after Phœnician architecture,) cannot fail to take a lively interest in the study of the Egyptian school, where it merely from the circumstance of its having been the supposed parent of that refined Academy where exquisite taste was once manifested, and which, at last, ennobled the name of Corinth and of Athens. Had superior talents been unrestrained by the shackles of superstitious regulations, forbidding the smallest deviation from prescribed rules in sculpture as unpardonable profanation, what might we not have further expected? According to Synosius, the profession of artist was not allowed to be exercised by any common or illiterate person, lest they should attempt anything contrary to the laws and regulations regarding the figure of the gods; and Plato (in this second book of Laws) says, "They never suffered any statuaries or painters to innovate anything in the art, or to invent any new subjects or new habits. Hence the art and the rules of it remain the same, but it rose to that perfection which the student of nature can alone attain. In spite of all the defect of Egyptian art, it has at least the great merit of originality. The character of the animals of their country, whether quadrupeds, birds, or fish, must be allowed by every one to be faithfully maintained; and if their statues, such as that of Memnon, with others of an earlier period, cannot be considered the result of refined taste, it will at least be admitted that the perfection they aimed at in engraving their hard porphyry-stone, intimates wonderful ingenuity as well as perseverance, and testifies the advanced state of Egyptian sculpture at a most remote period."—(Dr. Memes.)

§ Cleopatra.

‖ Denon's Egypt. Although Thebes had greatly fallen from its former grandeur at the time of Cambyses, (the Persian general,) it was the fury of this merciless conqueror that gave the last blow to its grandeur, about five hundred and twenty years before the Christian era. He pillaged its temples, and carried away the ornaments of gold, and silver, and ivory, which were abundant. At this period no city in the world could be compared with it in size, beauty, and wealth.—(Volney's Ruins of Empires.)

their great temple. In front it appears two lodges formed that part of the spacious entrance, before which was a raised platform, strengthened by masonry, and on an appropriate part was the name of the founder of the edifice. After passing the lodges, you arrived at a lofty building resembling a pyramidical tower on either hand, between which ran an oblong court, terminated by a pylon or gateway, which passed beneath the chambers of the inner or north side. At this gateway were ornamented balustrades, supporting four figures or African and northern barbarians; and the summit of the whole pavilion was crowned with a row of shields, which were the battlements of Egyptian architecture. A dromes of two hundred and ninety-five feet led to the main edifice, and the north-west, whose front was formed of two lofty pyramidical towers, or propylea with a pylon, or entrance doorway between them. The whole of this edifice constituted the pavilion of the king; and, in addition to several chambers of the inner or north side, which still remain, several others stood at the wings and in the upper part, which have been destroyed.

The sculptures on the walls of their private apartments are the most interesting, as they are singular in stories of decorations, that adorn the interior of an Egyptian palace. Here the king is attended by his harem, some of whom present him with flowers, and wave before him fans and flabella; a favourite is caressed or invited to divert his leisure hours with a game similar to chess: but they are all obliged to stand in his presence, and the king alone is seated on an elegant fauteuil amidst his female attendants, a custom still prevalent throughout the East.*

Lucian in describing the banqueting-hall of Cleopatra, Queen of Egypt, affords some interesting intimations of the diversity of the rich materials employed, of which ivory was the chief, in the interior decorations of the Egyptian houses: he also describes the practices of inlaying:—

"Rich as some fane by lavish zealots reared,
For the proud banquet stood the hall prepared;
Thick golden plates the latent beams infold,
And the high roof was fretted o'er with gold;
Of solid marble all the walls were made,
And onyx ev'n the meaner floor inlaid;
While porphyry and agate, round the court
In massy columns rose, a proud support.
Of solid ebony each part was wrought,
From swarthy Mereö, profusely brought:
With ivory was the entrance crusted o'er,
And polished tortoise hid each shining door;
While on the cloudy spots enchased was seen,
The lively emerald's never-fading green."

(Pharsalia, x. 119 et seq.)

* Wilkinson's Egypt. Among the most considerable and singular works which have ever been conceived by the Egyptians, must be reckoned their labyrinth, which the Greeks afterwards imitated in the well-known labyrinth of Crete, by Dædalus. Herodotus, lib. ii. p. 148, attributes the construction of the labyrinth at Egypt to the twelve kings whe reigned at the same time, about six hundred and eighty years before the Christian era. This edifice, which Herodotus had visited and examined very closely, he affirms to have surpassed everything that he could have imagined, and which he thus describes: "Within one and the same circuit of walls was contained twelve magnificent palaces, regularly disposed, and communicating with each other. These palaces contained three thousand halls, twelve of which were of a particular form and beauty. Half of the halls or chambers were interspersed with terraces, which ranged round the twelve principal halls, communicating with each other, but by so many turnings and windings, that without an experienced guide it was impossible to escape being lost and bewildered to discover an outlet. The other half were underground, cut out of the rock. Herodotus assures us that he visited all the apartments above ground, but those which were subterraneous they would not, from motives of superstition, permit him to enter, which some are of opinion contained the sacred mummies." (See Capt. Wilford's Asiatic Res. vol. iii. p. 425.)

The halls of this dodecagon palace had an equal number of doors, six opening to the north and six to the south, and at each angle of the external walls was erected an immense pyramid for the sepulchre of its founders. The whole of the walls and ceilings of this labyrinth of buildings were of white marble, and exhibited a profusion of sculpture; and each of the before-mentioned galleries or terraces was supported on columns of the same marble.—(Herodotus' Hist.)

We are of opinion, say some travellers, that ebony, when used in houses, was employed to form a sort of panel-work in numerous compartments, and disposed in complicated, but regular forms; the ribs or framework being ebony, while the compartments were filled up with the polished ivory. This idea is suggested by the frequent occasion we have had to notice such panel-work in different parts of Western Asia, particularly as used for ceilings. In this case, however, wood only is used, often valuable wood; and if not painted, the ribs being gilt, or covered with a colour different from the body of the work, so as to suggest the idea of a different substance. The Orientals still exhibit much partiality for inlaying their grand apartments, but we are not aware that ivory is now employed for this purpose. Looking-glass is commonly adopted, and some of the most splendid halls of regal palaces are thus inlaid with it: ornamental work in stucco is also much employed in interior decoration, and the manner in which certain prominent parts are covered with gilding, and other parts richly covered with intervals of clear white, has often suggested ideas of ivory, ebony, sapphire, and fretted gold, which ancient descriptions indicate. The Egyptian ceilings were remarkable for their richness, variety of forms and colours, and thus resembled our modern carpets.

The columns of the Egyptians present a great variety of styles, proportions, and dimensions, though always heavy, and almost invariably imitations of some arborescent production of their own country; sometimes representing the trunk of a tree. Such were the pillars of the little temple adjoining the palace of Luxor, from whence the heavy tapered shaft of the Dorians seems to have originated,—and others representing bundles of reeds, or the whole plant of the papyrus bound together at different distances, ornamented at the base with palm-leaves. The carved capitals of the Egyptian columns are also found to be representations of almost all the flowers and leaves peculiar to Egypt, frequently exhibiting the most delicate and minute parts of the plant, such as the petals, capulas, pistls, seeds, &c.*

The bell-formed capitals were generally preferred and adopted, but erroneously supposed to represent the full-blown lotus. Columns of this description are usually met with in the great halls of the temples, and are undoubtedly the most elegant of the Egyptian orders. The plant, however, from which this capital is borrowed or taken, is frequently seen in the sculptures of the tombs at Thebes.† The polygonal columns may be considered as the oldest of the Egyptian orders, and if they are not the grandest, are certainly preeminent for the chasteness of their style.‡

Egyptian Taste.—We shall briefly examine the monuments still existing in Egypt, the probable sources of those primitive modes; and in addition to what has already been stated, and in reference to the present subject, it will be necessary to explain the general character and principles of these aboriginal structures, with the view of ascertaining whether, and to what extent, they have influenced the more perfect science of the Grecian architecture. Of ancient Egypt, we have observed that the government was not only extraordinary in its enactments, but contemplated extraordinary results, which were pursued with an undeviating purpose by the hierarchy through an unknown suc-

* The Egyptian columns had their swell at the bottom of the shaft. The palm and lotus seem to have been preferred for ornamenting the capitals and sometimes at the bases, and more frequently introduced than other plants. The latter being an abundant production of the Nile, was partly held sacred, and as emblematical of its annual overflow; whilst the first being the most common, and in such varieties of species, furnished innumerable models for their imitation. The one alluded to is that of the date-palm, which grows in clustered stems.—(W.)

† I have imagined, that the form of this capital was taken or derived from the leaf of the *Faba Ægyptiaca*, a plant now unknown.—(Wilkinson's Egypt.)

‡ The tombs of the Mameluke kings of Egypt are extremely grand and picturesque; like all the Arabian edifices, they are built with limestone or basalt and with an alternate layer of black; they have staged towers crowned with turban domes, and trilobed-headed arcades to the upper stories.—(Wilkinson's Egypt.)

cession of ages, forbidding every progressive improvement; hence the uniformity of an imperfect character in their works, exhibiting much of the elements, but none of the perfections of taste. The external durability to which in all things the priests aspired, (of which the king was the chief,)* pointed out a style of architecture, especially in their sacred edifices, which contained, as most substantial, the sublimest forms and the largest masses. Hence in these mysterious structures, whatever deficiency may be perceived in beauty or grace, is compensated by vastness and ponderosity, the most powerful elements of the grand and sublime. In beholding these mighty fabrics, and then laying aside the associations of unnumbered ages, if neither the most refined nor agreeable emotions be experienced, the imagination must certainly be exalted to a high pitch of awe, astonishment, and admiration. Long lines, unbroken surfaces, simple contours, immense blocks, even while the individual forms are destitute of proportion, harmony, or grace, will ever produce a solemnity of effect.

What are the huge sepulchral pyramids of stone, or those mausoleums erected for the kings of Egypt†,—one of which at its base is supposed to be as large as the area of Lincoln's-inn-fields (square) in London; or, according to Strabo, seven hundred and fifty feet each side, by four hundred and eighty feet in height, built B.C. 1575,—but the astonishing idea of simplicity? What is the tall astronomical obelisk but a monument of the same form and order? The like may be observed of the inclining Egyptian temple, imposing, as it still is, in infinite dignity, but a form which is but the frustum of a pyramid, as the pillar is that of the cone, a construction well adapted for external duration. Again, the situation in which, as well as the time when, this singular style of architecture happened to arise, will be found to have imparted to it many of its principles and decorations. Exposed to the beams of a hot sun, the apertures of the buildings in that country were small when compared with the masses:‡ placed in a region seldom visited by rain, their edifices had, therefore, no pediments or inclined roof, as we find was afterwards necessarily the case in Greece. The palm-tree and the lotus rising on all sides, as we have before noticed, furnished the architects of this country with elegant shafts for their columns, and foliage for the capitals. The reeds from the banks of the Nile, single or grouped, afforded them bands for their entablatures and bold large concave cornices, from whence in all probability the Greeks in after times derived their triglyphs.§

The bright sun ever riding over their wide plains, was portrayed above their temple doors, as symbolical of the presiding genius of the land, and not unfrequently associated with the celestial signs of the zodiac. Their sculptures consisted of the winged globe and serpents, the crocodile, the

* The Kings of Egypt were always of the order of priests.

† The Egyptians had a notion of returning to life again, body and soul, after a period of three thousand years; from this it has been supposed, they intended their edifices should endure, that they might see them again in good preservation when they came back; but they will still sleep on to the end of time, when all will rise together, both Egyptian, Greek, and Roman, at the last day of accounts.—(Belzoni's Researches in Egypt, vol. i. p. 273.)

‡ The window-openings and doors, like the temples themselves, were always inclined.—(B.)

§ The Egyptians being a primitive nation, they had to form everything without any model (that we are acquainted with) before their eyes to imitate; yet so fertile were their inventive faculties, that to this day new orders of architecture might be extracted from their ruins. If we observe the Egyptian capitals, do we not see a complication of orders in one mass, which, if divided, would produce numerous hints for new ideas? If the man of taste was to inspect the various representations of the lotus-flower on their capitals, he would plainly see that not only the Doric and the Corinthian orders have been suggested from them to the Greeks, but that more might still be formed. There is reason also to believe, that the Ionic order originated in Egypt. The capital of the columns of Tentyra, those in the small temple of Edfu, and, lastly, the others in the small temple of Isis, in the island of Philoe, sufficiently indicate this. The name of the Deity, to which the first and third of these temples are dedicated, seems to strengthen this supposition. We know that Isis is the Io of the Greeks, and from whom the name of Ionic was no doubt derived, and it is very probable that he who introduced the order gave it that name as having been taken from the temple of that goddess.—(Belzoni's Researches in Egypt, vol. i. p. 277.)

cat, the monkey, the stork, and the beetle, and numerous other animals. The objects of their veneration provided them with additional forms of architectural embellishments. If we further take into consideration the varied observances of sacerdotal mystery, by which the disposition of the sacred edifices were regulated, and the different contemporaneous events, which frequently conferred a character on the collateral decorations of their edifices, we shall be prepared to allow the great influence of contingent circumstances, in constituting the Egyptian style of architecture what it was.

SUMMARY OF EGYPTIAN ART.

As to the venerable remains of Egyptian grandeur, when we take a summary view of them, we find that they are standing earliest in time, characterized by the greatest degree of primitive simplicity, and the test of what may be called experiment in art; but it now becomes us to inquire, before the merit of national design can be granted or their architectural labours admitted among the works of genius—Do these lofty effects arise from principle, or are they purely accidental? Are they the meditated results of science and taste among these people, or are they merely the inevitable consequences of the large and enduring styles which their political systems recommended? Upon the nature of the answer to these questions will, in a great measure, depend the rank of the Greeks as original inventors and refiners of taste, of whose architecture we have soon to treat.

Now there can be no doubt as to the pyramids of the Egyptians, that the imposing effect and sublimity of these piles are incidental, not inherent; it is the grandeur of the mass, and not any beauty of proportion. The imagination is indeed subdued by vastness, but the fancy is not delighted, having nothing to trace of any well-preserved resemblance to any acknowledged prototype; nor is the judgment either instructed by their deriving their elements from no known or immediate source. We discover, say some, neither imitation, nor creative taste for imitation, among the Egyptian works, as they are ever destroyed by some monstrous incongruity, and originality becomes aimless through interminable variety of accessories; hence is a science beyond the rules of necessity, necessarily imposed by the leading intention of durability; and we discover nothing in the architecture of Egypt like that universal harmony found in Greece. The character of the Egyptian architecture is evidently that of massy grandeur, and may be said to be adapted for giants rather than men, and therefore not so generally appropriate for domestic residences. The ornaments are generally heavy in execution, and offer no repose to the eye. The Egyptians, says Strabo, "worshipped every divinity but the Graces."

In a passing note, we may say, the same is that of the character of the architecture in India, which greatly partakes of that of the Egyptian, but with still more of the incongruous, for here the massive simplicity of the original, or at least the earliest examples, are broken down; being loaded or fettered with pretended Hindoo ornaments, in which clear manifestations appear of mixed art, and where that of the Egyptian predominates. When the Greeks first, or soon after, began to erect temples, there existed no science complete in itself, or whose principles had been elicited from the chaotic mass of materials by which they could have been directed in their own matchless monuments. Whatever of grace and of beauty, of dignity and truth, of sublimity and harmonious proportion; whatever of architectural excellence, grounded on the most profound principles of taste, and established on the same basis of geometry; whatever of all this can be discovered in the edifices of Greece, she owes to the superiority of native genius. Yet the obligations to Egyptian predecessors were neither few nor unimportant. The parallelogram of the Greeks, in

which the breadth bore a proportion to the length, was a form of all others best suited to beauty, chasteness, and sublimity. The Egyptians adopted that of the quadrangular square, therefore much less imposing in its effect. Columnar architecture was however practised so early, that whether it originated in Egypt or was introduced is not now known with certainty, though it is most probable that it began in Egypt, for here the system of ornament had its rise, or at least it is to be traced in their primeval remains; and as not a single detail was afterwards introduced that was not either in a rudimental or perfected state, here especially the beautiful idea of the floral ornament.

Lastly, in the works of Egyptian art, very excellent examples of order are to be met with; and specimens of mechanical practice, both in that of laying the materials and enriching them by an intermixture of various forms, may be observed in almost every instance of their works. All these elements moreover jarring among themselves, whether as wholes or parts, were to be selected, arranged, methodized, and animated by grace, harmony, nobleness; in short, the science of architecture was yet to be perfected.

PHŒNICIAN ARCHITECTURE.

The Phœnicians, like the Egyptians, were eminent in the art of building, and from them, as some authors suppose, they first learnt the rules, and afterwards carried the art into Bœotia in Greece, while the pastoral people of that country where living in a primitive state, without any fixed government or settled abode. The Phœnicians are generally supposed to have been the descendants of Noah, who branched from Ishmael, and settled on the coast of Palestine, and that they are the same people described in the Old Testament as the "Canaanites,"* and afterwards by the Greeks as Phœnicians.† Sidon, their capital, so often spoken of in Scripture, was founded by Sidon, the eldest son of Canaan;‡ but it was afterwards eclipsed by Tyre, in 1252 B.C., their own colony, and called the sister of Sidon. The once renowned and pompous city of Carthage in Africa (now Tunis), which was long the rival of Rome, and country of the immortal Hannibal, was also one of their provinces.§ This enterprising people at first inhabited the islands of Cyprus and

* The Canaanites dwell by the sea and by the coast of Jordan. (Numbers, xiii. 29.)

† Calmet, vol. i. 272.

‡ Great Zidon (or Sidon), the country of the Phœnicians, was situated on the Syrian coast, and extended from Tyre to Aradus. It was founded by Sidon, the eldest son of Canaan, consequently one of the most ancient cities in the world; it was remarkable for its manufactories and merchandise; and its mountain-tops were covered with forests, from which the Tyrian king supplied cedar to Solomon to build his famous temple and palace. Homer mentions those people frequently, and always as excelling in many ingenious and useful arts, giving them the title of πολυδυτοι δαλοι; and accordingly, all superior articles, all good workmanship in making vessels for use, and all ingeniously combined trinkets and toys, are ascribed by him to the skill and industry of the Sidonians. Thus the queen of Troy intending to offer a mantle to Pallas:

> "Herself, the while, her chamber, ever sweet
> With burning odours, sought. There stored she kept
> Her mantles of all hues, accomplish'd works
> Of fair Sidonians, wafted o'er the deep
> By godlike Paris, when the galleys brought
> The high-born Helen to the shores of Troy.
> From these the widest and of brightest dyes
> She chose for Pallas; radiant as a star
> It glitter'd, and was lowest placed of all."

When Telemachus expressed strong admiration of the wealth and splendour in gold and silver, ivory and brass, which the palace of Menelaus exhibited, the latter accounts for it by observing, that his treasures had been collected in his perilous wanderings, during which he had visited the shores of Cyprus, Phœnicia, and Sidon. The Sidonians, in 351 B.C., being besieged by the Persian army, they burnt their beautiful city to the ground.

§ Carthage is supposed to have been founded by a colony of Tyrians in 1233, and the city built by Dido, 869. It was afterwards destroyed by P. Scipio, 146, and re-edified by order of the Roman senate in 123 B.C.

Rhodes,* and which, being a barren soil, they there applied themselves to merchandise and works of art, which they carried to great extent and perfection.

It is probable that their architecture was of a style differing from that of the neighbouring nations, as Strabo in speaking of Tyrus and Aradus, two islands in the Persian Gulf, says, the Persians at that time had public edifices resembling those of the Phœnicians. Bromley says they were the inventors of an order of architecture which they generally used in their buildings, but he has not given us any description of it; probably he means those pillars executed by Hiram for Solomon.† It is even supposed by some, that those early people were the Cyclops mentioned by Homer, who built the walls of Tyrus,‡ by whom the first authenticated fabrics of stone were erected. Their mode at first was to cut every stone so as to fairly join against each other, forming polygons: the next was that of having three courses of square stone, laid checkered-wise, and those courses above them were laid alternately straight and square. The first method is still known by the name of "Cyclopean masonry," and is generally adopted in rough stone walls. We know in respect to the mechanical talents of these people, that Solomon, when he built his splendid temple and beautiful palace at Jerusalem, for the daughter of Pharaoh, king of Egypt, whom he had espoused, applied to Hiram king of Tyre for materials and artificers, which were sent from Sidon. This sufficiently proves that the Phœnicians were, even then, great proficients in the art of building.

We have a further testimony of the advanced state of the arts among these people at a very early period; for when Moses sent out his spies to explore Canaan, and to inform him what places the Canaanites inhabited, whether tents or strongholds, they brought him word that they had *cities*, which were walled and very great; that Hebron had been built seven years before Zoar in Egypt, and that they saw giants among them, or the sons of Anak, who came of the giants.§ Of the city of Tyre, in the twenty-seventh and twenty-eighth chapters of Ezekiel, we have a sublime and poetical description, as being a place of perfect beauty and splendour, and situated in the midst of the sea: it contained lofty houses, which its builders had made perfect in beauty, and was surrounded by a high wall, on which were erected watch-towers at certain distances, the usual mode of protecting towns in the East. "The men of Arvad (Aradus) with their army were upon thy walls, and the Gammadims were in thy towers; they hung their shields upon thy walls round about; they have made thy beauty perfect." Thus runs the whole of the two chapters, which are worthy of notice for their striking description of this once flourishing but now annihilated city.‖

* Gouget, Origine des Loix, tom. ii. p. 295.

† See the first book of Kings, vii. 13, 15, &c.; Joshua, xix. 28; Bromley's Arts, i. 181. The orders of the Persians at Persepolis are unique; at the base of the column is an ornament which resembles an inverted lotus-flower; the shaft is marked by very shallow flutings, and each pillar is formed of three pieces in height; the first joint is covered by another inverted lotus-flower, and above this rises a capital like the palm-leaf capital of ancient Egyptian temples: above this again are four scrolls, then a square fluted plinth with Ionic volutes, and, lastly, above all, an animal resembling a ram. The cornices are similar to the Egyptian, and have also winged globes.—(Buckingham's Travels.)

‡ Colonel Leake's Morea.

§ Numbers, viii. The giants are only known in fable, not found in the Hebrew Pentateuch; 'giants' is therefore an erroneous translation. The sons of Anak were merely men of an extraordinary stature; such as have been in all ages; and which exist at the present day among the North American Indians, and in various islands of the Southern Pacific.—(Bellamy's New Translation of the Pentateuch.)

‖ Tyre, built on an island in the sea at no great distance from the land, was the most celebrated city of Phœnicia, and the ancient emporium of the world. Its colonies were numerous and extensive; it was the centre of an immense commerce and navigation, the nursery of arts and sciences, and the capital of, perhaps, the most industrious and active people that ever lived. (Styp. Dic. p. 2039; Strabo and Bochart, &c.) Here was once a magnificent temple dedicated to Hercules, and that city was one of the first that received the faith of Christ, who himself visited the coast of Tyre and Sidon, and miraculously healed the daughter of the woman of Canaan. An early traveller who visited Tyre, the goodly city, (Benjamin of Tudela,) thus describes it. "One day's journey," says he, "from Sidon is Tyrus, furnished with a most commodious haven, which it containeth within itself, and receiveth ships between two towers built on both sides, so that a brazen chain being ex-

Of the architecture of Palestine, which appears to have been chiefly that of the Phœnicians, we shall have scarcely occasion to treat, as the temple and palaces built by Solomon are so amply described in the first book of Kings and the seventh chapter, as well as in the Chronicles; but of the palace of Lebanon we may subjoin the following note as interesting.*

ARCHITECTURE OF THE GREEKS.

"Architecture was by Greece refined,
And smiling high, to bright perfection brought."
(Thomson's Liberty.)

Although Grecian architecture is now the second in renown after that of the Egyptians, yet Assyria, as we have before observed, was a powerful empire under Nimrod; and Tyre and Sidon were opulent cities, abounding in manufactories, where the Phœnicians carried on an extensive commerce, while

tended from one tower to the other by the publicans to secure the gathering of customs, all entrance and going out of ships by night may be hindered, and no man can possibly convey away anything taken out of the ships; nor do I think any haven in the world is to be found like unto this. The island on which the city stood was surrounded with a wall one hundred and fifty feet high, and of proportional thickness, constructed with immense stones strongly cemented together." (Arrian.) The houses in the time of Strabo were here of three and four stories high, and built with splendour and magnificence, and inhabited by merchants whose wealth rivalled the opulence of kings, and whose fleets, prior to the celebrity of the Greeks and Romans, had braved the dangers of the ocean, and sailed to the four quarters of the globe. Let us contemplate these enterprises as completed by the efforts of a single city, which possibly did not possess a territory of twenty miles in circumference, which resisted a siege of thirteen years against all the power of the Babylonians, and another of eight months against Alexander the Great, in the full career of his victories, and then judge whether a commercial spirit debases the nature of man, or unfits him for the exertion of determined valour; and whether any single city recorded in history is worthy to be compared with Tyre.—(Dr. Vincent's Commerce, Navigation and the Arts, vol. ii. p. 624-5.)

But for exulting over Jerusalem in its calamity, the downfall of Tyre was predicted. "Son of man, because that Tyrus hath said against Jerusalem, Aha, she is broken that was the gates of the people: she is turned unto me: I shall be replenished, now she is laid waste. Therefore thus saith the Lord God; behold, I am against thee, O Tyrus, and will cause many nations to come up against thee, as the sea causeth his waves to come up. And they shall destroy the walls of Tyrus, and break down her towers: I will also scrape her dust from her, and make her like the top of a rock. It shall be a place for the spreading of nets in the midst of the sea: for I have spoken it, saith the Lord God; and it shall become a spoil to the nations." (Ezekiel, xxvi.) When the time for its destruction arrived, Alexander, before whom all the world quailed, came with his army and laid siege to it. He spent eight months before Tyre, and at last was compelled to a great undertaking, that of constructing an embankment or causeway from the main-land to the island on which the city stood, which he accomplished, giving his troops and engines full access to the walls. The Tyrians still however made a valiant defence, which, with the delay they had occasioned, so provoked the conqueror, after he captured the city, that with a cruelty, not unusual with him, and which has left a great stain upon his character, he crucified two thousand of the inhabitants, and sold thirty thousand for slaves; eight thousand had been slain in the storming and capture of the city. The town itself he set on fire.—(Q. Curt. iii. 2, 3. Arrian, ii. 18.)

Maundrell, who had travelled through the Holy Land, saw it, and thus describes it in its state of desolation: "The city of Tyre, standing in the sea upon the peninsula, promises, at a distance, something very magnificent; but when you come to it you see no similitude of that glory for which it was renowned in ancient times, and which the prophet Ezekiel so fully describes. On this rock where the city once stood, you see nothing now but a mere Babel of broken walls, pillars, vaults, &c., there being not so much as one of its ancient houses entire. Its present inhabitants are only a few poor wretches, harbouring themselves in the vaults, and subsisting chiefly upon fishing, who seem to be preserved in this place by Divine Providence, as a visible argument how God has fulfilled his word concerning Tyre, that it should be as the top of a rock, a place only for fishers to dry their nets."

* The house of the forest of Lebanon. (1 Kings, vii. 2.) The idea to be formed of this palace is, probably, that the house of the forest of Lebanon wherein the king dwelt, and the house of Pharaoh's daughter, were only different parts of the same large building, agreeably to the plan of oriental palaces. According to this view, the palace stood in the centre of a large oblong square, against the enclosing walls of which were built the necessary offices and apartments of the officers of the court. The palace itself was, on the whole, an oblong building, consisting of two courts, one on each side of a great central oblong hall and portico. This central hall, one hundred cubits long by fifty broad, was perhaps, in a more particular sense, the house of the forest of Lebanon, on account of the forty-five cedar pillars which supported its ceiling of cedar. This would seem to have been the grand royal hall of the palace. In front of this hall was the grand porch of judgment, which is obviously analogous to the gate of judgment of the Alhambra at Granada. This central porch and great hall seem to have been devoted to public affairs: on the right is the king's house, being a square court surrounded on all sides by a colonnade in front of the buildings which comprise the house, except on the side next the wall, where there are no buildings but only the colonnade. On the other side of the great hall was a nearly similar house for Pharaoh's daughter, or, in other words, the harem, a house for that princess and her female establishment, being in strict accordance with existing usages, under which the females, both in royal and private establishments, occupy a building quite distinct from that of the men. In reality, this distinction of a mansion into three parts, one for the public, a second for the male part of the family, and a third for the females, still prevails in the East.—(Bellamy.)

the Arcadian Greeks were ignorant of the most obvious and necessary arts, and are said to have been feeding upon acorns.*

It was a received opinion among the best-informed and most judicious Greek writers, that Greece was originally held by barbarians, a term appropriated in the flourishing ages of that nation, as a definition for all people who were not Greeks. Among the uncertain traditions of the various hordes, who, in early times, overran the country, the Pelasgian name is eminent, which may be traced in the East into Asia; so some think the Pelasgians were the ancestors of the Greeks. Hunting was their resource for a livelihood, and arms their first necessaries; they spread far, had few neighbours, and with those few little intercourse. Such people were, therefore, inevitably barbarians; but they would soon increase, and at last form themselves into colonies, and being visited by the Phœnician navigators, perhaps soon after its first population—they being at no great distance from the sea,—the whole participated in the means of civilization.†

This classic country—called by the ancient inhabitants Hellas, by the Romans Græcia, and thence by us Greece, as immortalized in the annals of mankind—is of small extent, being scarcely half so large as England, and not equal to a fourth part of France and Spain.‡ But it had natural peculiarities which influenced not a little both the manners and the political institutions of the inhabitants. Cecrops, it is generally allowed, was the founder and the first monarch of Athens, the capital of Greece, B.C. 1556. He was an Egyptian by birth, and landed at the first invasion of Attica, with a number of adventurous followers.

According to every account he found the natives a wild, ignorant people; a circumstance far from adverse to his purpose of forming a settlement.§ The country also, though not offering the most alluring prospect to a more refined and penetrating eye, was far from uninviting. On the verge of a plain, watered by ten small streams, a haven presented itself, commodious enough for the vessels of the time. Between the streams, near their junction about three miles from the shore, a rock, rising nearly perpendicular on all sides, offered every advantage for a fortified port. This union of circumstances was precisely what the early Greeks most desired for the situation of a city.‖ Such was that of Argos with its citadel Larissa and part of Nauplia. Corinth, with the Acrocorinthus and

* Some confining this idea to the acorn of the English oak, have expressed a doubt if it were a food on which men could exist; but it is to be remembered that acorns—*glandes*, βάλανοι—have been employed in the several languages as general terms, denoting all the various fruits of the acorn kind. That the acorn of the common oak-tree in Greece would afford a wholesome nourishment for man, and that even in civilized times it was not a very favourite food, we may learn from a passage in Plato's Republic, when Socrates, specifying the diet to which he would confine his citizens, proposed to allow them myrtle-berries and oak-acorns; to which Glaneon replies, "If you were establishing a colony of swine, what other food would you give them?" (Plat. de Repub. i. 2, p. 372, t. 2, ed. Serran.) The Cossæans, a free people in Mesopotamia, who have inhabited caves in the mountains time out of mind, are well known to feed upon acorns and salted flesh of wild beast.—(Arrian's Expedition of Alexander, b. vii.) In Italy, Sicily, Corsic, &c., the chestnut is still used as food by the peasantry, and is very wholesome when made into bread. The acorn and chestnut are here probably confounded.

† At Mylan, in the Grecian Archipelago, near Smyrna, there is a Grecian primitive colony settled near the sea-coast, whose houses along the shore are cut into the sandstone rock; they consist but of one room, and without a chimney. Along the brow of the cliff there are houses built for the better sort of people, but none of which exceed one story in height.—(H.)

‡ Hill's Essays.

§ The hazard to which unfortified and solitary dwellings were exposed from pirates and freebooters, naturally drove the more peaceable of mankind to assemble in towns for mutual security. To erect lofty walls around those towns for defence was then an obvious invention, and required little more than labour for the execution.—(Thucydides, i. 1. c. 10.)

‖ In ancient Greece every metropolis possessed its citadel and its plain, the citadel as a place of refuge during war, the plain as a source of agriculture in peace; therefore the appearance caused by a plain, and surrounded by mountains, or having lofty rocks in its centre or sides, is at this day the general indication of ruins, which denote the locality of some ancient capital. Many of these plains border the sea, and seem to have been formed by the retiring of its waters; cities so situated were the most ancient: Argos, Sicyon, Athens, and Corinth are of the number. The vicinity of fertile plains to the coast offered settlements to the earliest colonies before the interior of the country became known. As population increased, and the first settlers were driven inward by new adventurers, inland cities were established, but all of them possessing their respective plains.—(Mitford's Hist. of Greece.)

part of Lechæum, and many other mountains—but not of that formidable height common through Greece—at some distance surrounded the plain, which, though not of the best fertility, appeared not unsusceptible of cultivation. Cecrops occupied the rock, but how far by force or how far by persuasion we are not informed, but it is certain that he subsequently extended his dominion over the whole tract called Attica.

Having thus taken possession, he divided his territory into twelve districts, with a principal town, or rather perhaps village in each, where he caused justice to be administered according to some salutary laws which he enacted, and taught his subjects a more regular and effective mode of defence against the incursions of the Bœotians,* their only neighbours, from which even their poverty did not exempt them. The fortress, which now became his residence, was from his own name called Cecropia, whom the Greeks worshipped as a divinity by the name Athenaia, and the Latins by that of Minerva; while many of the natives, induced by the near neighbourhood of the fort, and expecting security both from the citadel and from its tutelary deity, erected their habitations around the foot of the rocks.†

Into their state of domestic architecture, neither the poems of Homer nor any collateral source afford much insight. Both in the Iliad and the Odyssey, indeed, palaces are described; but in a manner extremely general as well as indefinite. These palaces, which appear to answer all purposes for public edifices, are described as very capacious, containing numerous apartments very rich in doors of ivory and gold, and with posts of silver; but not the slightest expression occurs indicative of any regular order of architecture, ornament, or design. Magnificence or lavish profusion of splendour is everywhere confounded with beauty and grace, and regular art. During the Homeric age, it is plain that the orders of architecture were yet unknown, or at least not adjusted in such proportions as we now have them in the Grecian temples. In most of the states of Greece the first houses were small, and destitute of ornament; and at Sparta they were uncommonly plain. During the prevalence of the institutions of Lycurgus, the Spartans were obliged by law to form the inner part of their habitations of the coarsest materials:‡ they worked without a plane; the doors were fashioned by the saw, and the ceiling alone by the axe;§ not that the legislator intended to abolish altogether the science of architecture; he merely wished to restrict it to temples and public buildings as the Egyptians had before done in Egypt. The flat roofs of the early private dwellings peculiarly distinguished them here from the public edifices;‖ but in Arcadia, nothing distinguished the houses of the nobles from others. At a late period, however, when they began to improve in their domestic architecture, they were conspicuous only from their contrast with those magnificent temples erected during the administration of Pericles; but ultimately they were rendered very splendid by a great variety of em-

* Bœotia was one of the largest establishments of Greece, founded by Cadmus, the grandson of Agenor, king of Tyre, five hundred and sixty-two years after the walls of Babylon were built, and three hundred years before the Trojan war. He brought architecture into Greece from the Phœnicians, and there built Thebes, in 1124 B.C., so called after the famous city of Thebes in Egypt, where he had spent many years of his life.—(History of Greece.)

† Before the age of Pericles, the houses, which had gradually spread along the plain, formed a circuit of more than five miles. As Athens contained only from forty to fifty thousand inhabitants, this extent was more than sufficient for their accommodation; but many of the houses were surrounded with gardens and plantations, which were necessary in so warm a climate, and thus rose early a considerable town, which from the name of the goddess was called Athenia, or, as we after the French authorities have corrupted it, Athens.—(Hill's Essays.)

‡ The city of Sparta, like many of the oldest of the Grecian towns, was composed of five hamlets, near each other, but not adjoining, and this city had no wall; the city was the residence of the nobles, the country of the commons.—(Müller's Dorians.)

§ Plutarch, Lycurg, 13 de Eu. Cam. ii. p. 2. Reg. Apophth. p. 125. Lac. Apophth. p. 222. Quæ Sᵗ Rom. 872, 363. Proclus ad Heriod. op. et Di. 421.

‖ Theophrast. 18, 330.

bellishments. Even the kings of Greece, in Homer's time, lived not only in spacious houses of stone, which the poet calls polished stone,* but also richly ornamented houses, the walls of which glittered with inlaid brass, silver, gold, amber, and ivory; but no such splendour was seen in the dwellings of the Heraclidean princes. The palace of the two kings of Sparta,† said to have been built by Aristodemus 490 B.C., at the taking of the town, was found remarkable. Here Agesilaus lived after the manner of his ancestors; the doors, even in his time, being, according to Xenophon, those of the original building, and turning on two pivots, one in the centre of the top of the door, the other at the bottom; so that one half of the door turned inwards, the other out. Hence Leontychides the elder, when on a visit, asked his host at Corinth—which city had become rich and addicted to luxury—on seeing the ceiling ornamented with (*φατνώματα,*) lacunary, or sunken panels, whether the trees in Corinth were naturally four-cornered.‡

Though there still exist in Greece splendid temples to show the magnificence of the sacred architecture of the Greeks, yet their domestic architecture, like that of the Egyptians, is passed away into annihilation. Our description of these habitations, both in their country and towns, must therefore be sought from other sources. The Abbé Barthelemy, in his account of the travels of Anacharsis the younger in Greece, in the fourth century B.C., says the houses in Athens which he visited had two stories, and two private sets of apartments; the upper story was for the women and the lower for the men. When the house consisted of one story, the apartments of the men were in the front and the women's in the back, surrounded by a square colonnade like a convent, in the centre of which was a plateau. These apartments were approached by a long narrow alley or passage, (Vitruvius who has also described the Greek houses styles it a *journey,*) at each end of which was a lodge for a eunuch, who acted as porter, no men being permitted to enter this cloister except the husband and near relations. In the front of the house there was generally a court-yard, enclosed by a wall or screen, which separated the house from the street, like Burlington-house in Piccadilly, London, containing within a large portico, under which was the front door of the house, entrusted to the care of a eunuch. Sometimes there was placed here either a figure of Mercury, supposed to drive away thieves, or a dog, an animal which was considered a much more effectual guard,§ and there was almost always an altar here in honour of Apollo, on which the master of the house sacrificed on certain days.‖ At the back of the house was a garden, and in the middle a square colonnade opening on a grass-plot in the centre.¶ Plutarch says the Grecian houses were light, airy, and commodious, and that it was generally the custom to have a palm-tree before the front of the door in the court-yard.**

Greek towns in general consisted of poor, mean houses, irregular streets, lanes like alleys, and shops

* Perhaps this only means squared and well-wrought stones, which might be said to be polished when compared with the Cyclopean masonry of rough stone, which had hitherto been used in Greece. The ruins of Mycenæ being anterior to the time of Homer, contain specimens of an architecture very different from the early Doric. The artisans of that time were chiefly engaged in the construction of treasuries, not of temples, which afterwards served for the same purpose as the former. Another fact deducible from the ruins of Mycenæ, as well as from the description left by Pausanias and others of the Greek buildings of those times, is that the early colonies of Egypt, although they introduced some of the mythology of that country, did not transplant its arts in any great degree, for there is nothing at Mycenæ bearing any resemblance to the monuments of Egypt; nor, indeed, have the temples in Greece any similarity to those of Egypt beyond the existence of columns, which are so natural an invention, that they are found in the huts or caves of similar climates in every part of the world, and in the course of improvement, have become the principal ornaments of sacred buildings in the most distant countries.—(Colonel Leake's Morea, iii. 271.)

† It was the custom here for two kings to rule together.

‡ Müller's Dorians, ii. 272.

§ If not a real dog, there were frequently two painted on the walls, one on each side of the front door.

‖ Aristoph. in Vesp., v. 870.

¶ Anacharsis' Travels, vol. ii. p. 446.

** In the front of the house was generally a court-yard, separated from the street by a wall. Towards the street were

small and unglazed like those of our poulterers' shops in London, with trellis-work in front.* The narrowness of the streets, however, was more valued than light ways by residents in that climate, on account of the intensity of the solar rays. Professor Müller observes, that the towns on the Peloponnesus are, for the most part, irregularly built, whereas we are informed by Pausanias† that the Ionians had learnt to lay out their streets in straight lines, a custom which Hippodamus of Miletus succeeded in spreading over the rest of Greece.‡ It was probably this architect who, in the year 445 B.C, laid down the plan of Thuriæ in exact squares, with streets at right angles,§ and the same who, in his old age, built the city of Rhodes (467 B.C.) with such perfect symmetry, that to the astonished ancients it seemed like one house.‖ Homer gives us but a partial account of the country-house of Laertes in his Odyssey, but sufficient to show that it was one story high, and constructed round a court like an exchange:

"Here stood the mansion of the rural sort,
With useful buildings round the lowly court,
Where the few servants, that divide his care,
Took their laborious rest and homely fare."
(Odyssey, b. xxiv.)

He also describes a Grecian sylvan cottage with its accompanying scenery:

"Ulysses musing, o'er the mountain stray'd
Through mazy thickets of the woodland shade,
And cover'd ways, the shaggy coast along,
With cliffs and nodding forests overhung;
Eumæus at his sylvan lodge he sought,
A faithful servant and without a fault;
And here he found him, busied as he sate
Before the threshold of his rustic gate.
Around the mansion in a circle shone
A rural portico of rugged stone.¶
The walls were stone, from neighbouring quarries borne,
Encircled with a fence of native thorn;
And strong with pales, by many a weary stroke
Of stubborn labour, hewn from native oak.
While thick within the shady space were rear'd
Twelve equal cells, the lodgment of his herd.
Now enter this my homely roof and see,
Our woods not void of hospitality,
He said, and seconded the kind request,
With friendly step precedes his unknown guest,
A shaggy goat's soft hide beneath him spread,
And with fresh rushes heap'd an ample bed."
(Odyssey, b. xiv.)

Homer, in his description of domestic buildings, always heaps riches upon riches, and ornament above ornament, so as to make that dazzling which he cannot render great. This, however, while it

the θυρα αυλειον (Herod. vi. 69.), in the house the εγγυτερω πυλη. Plutarch. Lac. Apophthegm. of Leontychides. (6 Αριστωνος is in error, p. 215.) It was the custom at Sparta not to knock, but to call at the outer gate. (Plutarch's Instit. Lac. p. 253.) The same was also the custom among the Æolians, so says Alcœne in the poems of Theocritus, xxix. 39.

* When Le Roy, a French architect, was in Greece, he tells us, that the citizens and their cattle slept on the same floor in different apartments; and he was surprised, he said, on seeing the oxen, goats, and sheep pass before him peaceably to their respective rooms. (Le Roy's Greece.) The same custom prevails in Switzerland among the mountain shepherds for the sake of warmth and security.—(See Coxe's Travels, and Dr. Beattie's Switzerland Illustrated.)

† Pausan. vi. 24. 2.

‡ The first attempts of the Ionian artists were rude; but their emulation of each other, joined with the desire of obtaining the public approbation, rendered their efforts more successful; and it appeared that when Greece did not possess a single monument of the arts, there existed in Ionia many of those edifices, the ruins of which still exhibit some of the most finished models of architecture ever produced by human ingenuity.—(Ibid.)

§ Diod. xi. 140. ‖ Meuroius, Rhod. l. 10. ¶ This was evidently a circular residence.

affords more valuable evidence of his veracity, detracts nothing from his genius. Even the palace of Troy in Asia Minor,* though Paris himself is reputed as a great architect, is described in the same general terms:

"And now to Priam's stately courts he came,
Rais'd on arch'd columns of stupendous frame;
O'er these a range of marble structure runs,
The rich pavilion of his fifty sons,
In fifty chambers lodged, and rooms of state
Opposed to these, where Priam's daughters sate,
Twelve domes for them and their loved spouses shone,
Of equal beauty and of polish'd stone."
(Pope's Homer's Iliad.)

This, and indeed almost every other passage, referring to the practical arts of antiquity in Asia Minor, (where stood Priam's palace,) says Dr. Memes, is very incorrectly translated. From a comparison of various original descriptions of palatial buildings, a tolerable idea of the highest effects of architecture, during the Homeric and succeeding ages, may be obtained. They appear invariably to have been placed so as to enclose a court,† along the sides of which ran an open corridor, formed by square pillars, for the word corresponding to column, which is a round object, does not once occur in the Iliad. These square pillars, as may be seen in the early Egyptian buildings at Elephanti, were united by a flat epistylia, or architrave from pillar to pillar. "Arched columns" in our translation is decidedly erroneous, for the arch at this time was unknown in Troy and to the Greeks, nor was it discovered till after the Macedonian conquest. It should have been translated high columns. Now during the time of the Iliad, no division of stories appears to have been adopted, and the expression "lofty chambers," so often occurring, seems to imply that the whole was open to the roof, for the apartments, with the exception of the great hall, do not otherwise induce the idea of great magnitude. In the Odyssey, against this mode of division, distinct reference is made, a circumstance which, with many others respecting the arts, points to a much later period than the age of the poem itself.

CHARACTER OF THE PUBLIC BUILDINGS AT ATHENS IN THE TIME OF PERICLES.

"Proud Athens rears on high her towery head,
With opening streets and shining structures spread."‡
(Odyssey, b. viii. v. 100.)

Pisistratus and his son Hipparchus were the first who proposed to introduce a style of elegance and magnificence into the public buildings at Athens; but their plans were too extensive to be finished by themselves, and the continued wars in which the Athenians were involved, joined to a dislike of

* The city of Troy was founded in 1546 by Scamander, from Crete, and was burnt by the Greeks in 1184 B.C.

† The present house of Logotheti in Greece is a good specimen of the better kind of domestic architecture, and we mention it here as it seems, in some respects, to resemble those of the early ages; a double or folding door (the αυλαιεργειοι of the ancients)[1] opens into a court or αυλη, on two sides of which is a corridor, αεδουσα of Homer.[2] The kitchen and menial offices occupy the ground-floor. The stairs, which are on the outside of the house, lead to a large open gallery, useful in rainy weather for walking and taking the air under cover; contiguous to the gallery are the apartments, which are divided into two parts, one for the men and the other for the women. The wall which separates the house from the street, and in which is the entrance, was the προδομος, or προαυλιον.—(Dodwell's Classical Tour through Greece, vol. i p. 2i, 112.)

‡ These were of white polished marble.

[1] Æschylus, Χοηφοροι, v. 560, 652.

[2] Odyss. 3, 5, 493.

every measure suggested by any person connected with Hippias, prevented them from being afterwards completed. No sooner had Pericles, by eloquence and address, obtained a complete ascendency over the minds of his countrymen, than he conceived a similar design. Possessed himself of a taste for elegance and splendour, he was convinced that while gratifying it, he should at the same time secure the favour of the Athenians, by flattering their vanity, and affording constant employment to the poorer classes of citizens. In carrying these views into effect, he had recourse to one of the boldest and most unprincipled measures which any statesman ever devised. The contributions annually paid by many Grecian states for repelling any future invasion that might be made by the Persians, under whom they had many times suffered, had been transferred from the island of Delos to the citadel of Athens, and having been continued for a number of years, had accumulated to an immense sum. No immediate exigency requiring this for the public service, Pericles persuaded his countrymen to expend on the decorations of Athens and the improvement of the arts, a portion of this sum equal in value to £4,000,000 sterling. In forming the plan of the magnificent edifices which he was thus enabled to construct, Pericles was directed by the celebrated Phidias, the greatest genius in the arts to whom any country has ever given birth.* During fifteen years this wonderful man acted as superintendent of the public works at Athens, and in that time built, of the finest Pentilican marble, the Παρθενον, Parthenon or temple of Minerva, the Προπυλαια, Propylia, an entrance into the citadel, the Ωδαιον, Odæum, or theatre of music, and many splendid porticos in different parts of the city.† Notwithstanding the various productions of genius exhibited in Athens, the city itself was far from being beautiful: in general the houses were mean and inelegant, consisting but of one story, and the roofs had terraces. The streets were narrow and irregular, and it was not till a stranger reached the citadel that he could perceive any traces of the elegance and splendour which he had expected to admire from reading the classic poets and historians.

Athens has often been besieged by the Persians and oppressed by tribes of Turkish barbarians, and by modern nations stripped and despoiled;‡ yet, at the distance of more than two thousand years, the ruins of these edifices, fragments of which may be seen in the British Museum, are still viewed with admiration and astonishment, and display that scale of magnificence in architecture, which has never been surpassed for chasteness, beauty, and sublimity.§

As to the Grecian orders of architecture and their origin, we find that the early Greek architects were accustomed to travel to Egypt in order to study the ancient monuments, in the same manner

* Dr. Hill's Essays on Ancient Greece.

† These porticos, to render their appearance more grand and attractive, had their walls coated with stucco, and painted in fresco, and their ceilings ornamented with lacunary or sunk panels. Under these porticos the Grecians walked, and conversed on business; and here the different philosophers gave lectures to their pupils.—(Plutarch's Life of Pericles.)

‡ The Turks are now expelled. The Greeks are free, and have formed themselves into a monarchy under Otho I., who has put a stop to any further destruction of these ancient monuments of taste, which, when viewed on their own classic ground, excite the most profound veneration; but which, when removed to another country, lose much of that grandeur which had arisen from associations with the original site and country.—(R. B.)

§ Solon, in the time of his government, passed a law requiring every Athenian to engage in some profession; and further enacted, that a father who had bred his son to no employment, should not be entitled to demand his assistance or support if, in old age, he became reduced to indigence. In consequence of this, there were few states in which industry had been so common among the higher classes of artisans as at Athens. To give employment to those who had inherited an independent fortune, and were not inclined to engage in manufactures or commerce, Solon decreed painting and statuary to be liberal arts, enacting that they should never be practised by slaves. In consequence of this regulation, the practice of these elegant arts formed the occupation of many wealthy Athenians, and the study of them came to be considered essential to a liberal education. Few persons attained to eminence, but the public taste became refined, and artists found it necessary to give more attention and the highest finish to their productions, when they were to be judged by men familiarly acquainted with the principles on which the beauty of such works depended.—(Plutarch's Life of Solon.)

as our young architects now travel into Greece to study the temples, for the purpose of improving and refining their genius, and to enable them to apply rules to their composition. Hence the Greeks can only claim the merit of having chastened, and brought architecture to greater perfection, it being well known that they took their principal ideas from the Egyptians. As the Greeks raised an everlasting monument to their genius in the labyrinth of Crete, built by Dædalus of white marble, so had the Egyptians anterior to this by their famous labyrinth in Egypt, which was adorned with columns of porphyry, and which building we have fully described in the architecture of the Egyptians. The Greeks are allowed to have been the inventors of three orders of architecture:—

"First, unadorn'd
And nobly plain, the manly Doric rose;
The Ionic then with decent matron grace
Her airy pillars heaved; luxuriant, last,
The rich Corinthian spread her wanton wreath;
The whole so measured true, so lessened off
By fine proportion, that the marble pile
Form'd to repel the still or stormy waste
Of rolling ages, light as fabrics were
That from the magic wand aërial rise.
These were the wonders that illumined Greece
From end to end."

DORIC ORDER.

This order lays claim to a more remote origin than the other two; it is the first found in the monuments of Grecian or classic architecture, and owes its appellation to the Asiatic Dorians, who, long previously to the introduction of any other style, first composed and adopted it from the idea they had gained in their observations of the Egyptian edifices. It was for a long period, indeed, the only one known, and it was brought to the greatest perfection by the Asiatic Greeks.* Prior to the Macedonian conquest, it was exclusively adopted, with very few exceptions, throughout European Greece—Magna Græcia—where even to this day the most ancient remains—particularly those of Pæstum—are found to be the finest specimens of this order.

IONIC ORDER.

This order owes its rise and appellation to the Ionians of Asia Minor, who, in their cultivation of architectural taste, introduced into this country the new form which particularly distinguishes the Ionic, namely, that of the spiral volute, the idea of which it is evident they had, during their commercial intercourse, borrowed, with very little alteration, from that of the Egyptians, whose temples, particularly at Etfu, Eme, and Kaum Ombou, furnished their capitals with abundant specimens of a feature closely assimilating to its form. The period of its adoption is nowhere recorded: from association of historical events and data, however, it must have been about the middle of the sixth century B.C.

CORINTHIAN ORDER.

This was the last order invented by the Greeks, and is supposed to have been at Corinth, but at what precise period of time is a matter which has been disputed. The old story—though ingenious enough—of the Corinthian sculptor Callimachus having caught the idea from a funereal vase placed over a virgin's grave, covered with a tile on the top, and encircled with an acanthus-plant, which is said to have attracted his attention and admiration, we do not think will bear the test of scrutiny.

* Müller's Dorians.

He lived in an age (1540 B.C.) much earlier than that to which this style is by any means traceable, even by associating events, and when architects had not attained to any degree of perfection or variety among the European Greeks. Besides which, the olive branch constitutes the ornamental part of all the most early Corinthian capitals known, a circumstance that greatly tends to shake the belief of such a tradition. On the other hand, it may be asked, Which Callimachus was it? as there were two of that name, who lived at remote periods from each other. This question, however, it has hitherto been found impossible to decide; nor is there any probability of our ever arriving at a just conclusion. At all events, whoever claims the merit of the invention, the idea was very clearly borrowed from a bell-shaped capital very common in Grecian architecture, the body of which is there gracefully surrounded with palm-leaves, and which the Egyptian architect has merely deviated from, by substituting for the latter the plants of the acanthus, or bear's-foot, which was a herb peculiar to his own country.*

SUMMARY OF GRECIAN ART.

The question now arises, Has Grecian art been less subject to the operation of the same influence than that of Egypt? Jealous as the ancient Greeks were of their claims to originality in every respect, they would not for the most part allow that the sciences, any more than their national ancestry, were of foreign derivation. To such a belief, however, we may award what degree of credit we please, when we remember that Athens, afterwards the fountain of all refinement, owed its foundation, and of course its earliest arts, to the Egyptian Cecrops. The principles of analogy, indeed, as well as the facts of history, lead to the conclusion, that the bold Doric of the Greeks, the first that they composed, was but an improvement on the massive Egyptian from the temple of Cneph, in the island of Elephanti; and so judged Monsieur Denon while studying these primeval models of art in Egypt.

Having thus, however, gained so fundamental an idea to proceed upon, the Greeks did not, like those from whom they borrowed their elements of art, feel an inducement from the charms of old associations, or the requirements of national custom, to perpetuate the detailed forms of their prototypes to any greater extent than might be agreeable to their own ideas of fitness. And here also we find a number of accidental circumstances, combining with the suggestions of taste, to produce novelty of style. The sun's rays fell with mildness on Greece compared with their fervour in Egypt, and the mountain prospects on all sides in Greece, like the Elysian fields, were those of beautiful variety, and not of sands and level plains, monotonously dotted over with palm-trees as in Egypt. Hence, instead of few columns occupying as it were a mere opening in a wall, forming the entrance, which was the common Egyptian distribution, the Greeks formed the idea, and found the advantage of a continued colonnade along the flanks of their buildings, as well as the front and postern ends, in which colonnades they took their exercise, excluded from the midday sun, dis-

* If we may be allowed to judge by the comparatively few and unimportant remains of the Corinthian order in Greece, attributable to periods anterior to the Roman conquest, it can never have attained any degree of favour equal to the other two. However, being possessed of an ornamental character, it was adapted to the splendour and magnificence of the Roman taste, and on their becoming masters of the country, the Romans caused it to be generally adopted, not only in Greece, over the Peloponnesus and their own cities, but throughout all their colonies, and every other country that subsequently fell under their dominion. Hence the splendid structures of Balbec and Palmyra, which are wholly of this order, and executed in the most florid style of ornament, were raised during the reigns of Adrian and Antonine, when Roman architecture had attained its highest perfection.—(The Author.) The Grecian pilaster, it must be observed, differed from the column not only in its mouldings, but in its being made tapering or diminished at the top.—(B.)

coursing on subjects, or enjoying the benign influence of the atmosphere, and the charms of the luxuriant scenery around them. These colonnades also gave grandeur and solemnity to their public edifices.

In Greece, however, while the air was most temperate, rain was frequent and copious, in consequence of which the sloping roof was here seen to rise up and span the edifice, the triangular ends of which, being finished with the same cornices as the horizontal parts, now produced the beautiful and dignified pediment.* These two features of the peristyle or colonnade, formed around the building, which were sometimes in double rows, with the pediment at each end, and the internal parallelogram cell, form the distinctive character of the Grecian temple, which, taken in connexion, suggests the idea of a temple in a grove, according to the custom of the primitive pagans in the early ages.†

Passing from the mass to the ornaments, we recognize with satisfaction the happy contingency which scattered on all sides round the Greek architects the acanthus, the honeysuckle, the rose, and other vegetable productions, with modifications of which they have so beautifully decorated their works as to have constituted them examples of taste to all future ages. From the graceful involution and foliage of some of those vegetable plants, the Ionic volute, but more certainly that of the Corinthian capital, may probably have taken its rise, whatever may have been the statements of legendary fable upon this subject. As to the Doric representing the masculine, or the volutes of the Ionic being taken from the curls of hair suspended on each side of a Grecian lady's head; and the Corinthian as representing the feminine of the human figure, or the capital of the Corinthian being suggested by an acanthus-plant, which, as we have before observed, had grown up round a basket containing toys, with a tile on its top that had been placed on the grave of a child by her nurse, we shall not here attempt to discuss.‡

If we look for an additional effect of contingency upon architecture, as attending the customs and events of the times, we shall find that effect is developed by the refinement which gave birth to the Grecian theatre, by the heroism which was rewarded with new monumental structures, by the legends and observances which afford subjects for the collateral decoration of sculpture, or by the encouragement offered by the government in the reign of Pericles, or the oracle, as interest or circumstances suggested. The Greek style was thus formed by the union of many adventitious circumstances, with the exercise of much judgment and taste; and thus, at last, Greece was furnished

* Corinth was the first place where the ends of the temple were finished off with pediments.—(Müller's Dorians, p. 276.)

† It appears to have been a principle with the architects of these edifices to have all the chief masses horizontal, and the subordinate masses vertical, excepting such as partake of a diagonal character, which merit distinct consideration; also, that the leading lines should have the effect of undisturbed continuity, whilst the secondary lines should be as decidedly, and sometimes even abruptly intercepted.—(P.)

‡ As neither the Greek nor the Roman architects were negligent of the beauties of vegetable nature, so their edifices abounded with imitations of them, being so admirably adapted to the purposes to which they were applied, that they are viewed by the artist, not as copies, but as original inventions. The Greeks, who studied relativeness of form with the greatest care, adopted as prototypes for such ornaments those ligneous plants which best permitted an arrangement of graceful lines, and which they could use as a medium for combining, as it were, one part of the design with another, or for leading the eye of the spectator by the course most advantageous to the general design. In the sculpture of these they observed the same principle of relief, and of light and shade, as where the human figure was employed. In this species of ornament among the Greeks, the stem usually prevailed over the quantity of foliage, whereas in the Roman decorations, the stem was usually subservient to its luxuriance; and the Roman examples prove how capable those artists were to use these means of decoration in an ample manner, without seeming to overcharge the orders in which they were adopted.

The artists of both countries employed the circular form of flowers for the same purpose, that of separating one part of the design from the other, as observed in the metopes, and of attracting the eye of the spectator to suitable parts of repose; where, from a multiplicity of angles, a sort of confusion would otherwise occur, as in the lacunary coffers of empanelled ceilings, or in the soffits between the modillions of the Corinthian and Composite orders.—(Papworth.)

with many chaste, sublime, and noble monuments of architecture. If we reflect on the beauty, grandeur, and magnificence of many of those never-dying works of ancient Greece; if we think on those animating ideas which many an immortal genius has given us of its state; if we reflect on the pleasure, the happiness we enjoy in having these elements of art so carefully preserved in the works of our countrymen, Stuart and Revet, and in the volumes of the Ionian society, when all these stately cities themselves are destroyed, and their magnificent temples passing away into ruin and decay,—we cannot value or esteem those architectural remains too highly. The beauty of Grecian architecture, in spite of the capriciousness of taste and the lapse of time, still charms us; while the bright, the glittering image glows with gleaming light in the several passages of the mind, impressed there by the symmetry and disposition of these works. We behold them with admiration, and they soften us into feelings of unutterable pleasure.

ETRURIAN ARCHITECTURE.

The Etruscans were a colony of the Pelasgi from Greece, who inhabited Campagna in the middle of Tuscany, the early history of which country is lost in the lapse of ages. It is however fabled to have been first peopled by giants, and visited by Hercules; but afterwards to have been held by the Osci, and lastly by the Pelasgian Greeks or Etruscans. (Diodorus Siculus.) There they founded twelve cities, of which Capua,* originally Vulturnum, the principal, afterwards became, both in power and in the number of its inhabitants, the rival of Rome,† and in the year U.C. 428, considered themselves able to cope with the Roman power.‡ These people were antecedent to all the rest of the Italian peninsula in cultivating the arts, which they had practised even before the time of Cadmus. They are generally reported to have been equally distinguished in architecture, as they were in the art of design. Their early architectural works, however, having been generally built without mortar or cement, have mostly been overthrown or levelled with the ground; but the architecture of the Etrurians must be considered more as a style than a school of art. In its earliest period, that is before and about the time of Cadmus, it partook of the Egyptian and earliest Grecian styles; became afterwards refined through its connection with Greece, and finally the immediate parent of the Roman.§

The walls of these ancient Etrurian cities were generally lofty, and constructed with large masses of masonry, remains of which have been discovered at Volterra, Cortona, Fesolè, and other parts

* That the Etruscans were a people who had early migrated from Greece to Italy and settled there, we have the best of evidence.—(Tacitus, Annals, b. iv. p. 61.)

† Alteram Romam, ex Phil. 12.

‡ Etruria was originally a very large country, extending from the Tyrrhenian sea to the Apennines, from Liguria to the Tiber. Tuscany, as it was known by at one time, had three considerable republics, Florence, Sienna, and Lucca; Florence is now the capital. The Latins called the inhabitants of it sometimes Tuscans and sometimes Etrurians, but the Greeks more frequently Tyrrhenians.—(Hooke's Roman Hist. vol. i. p. 167.)

§ There is a beautiful model of an Etrurian Ionic order, with a mask of Paris in the capital, lately discovered and placed in the British Museum.—(B.) Etruria is now chiefly known as being once famous for its pottery of ewers, vases, and urns, many engravings of which Sir William Hamilton has given us in his splendid work on Etrurian antiquities, ornamented with figures of heathen gods and goddesses in the most graceful attitudes and flowing outlines, tinted in the original colours. Darwin, in a poem on Etruria, speaks thus as to their knowledge of the fine arts:—

> "Etruria next; beneath the magic hands
> Glides the quick wheel, the plastic clay commands;
> Nerved with fine touch the fingers, as it turns,
> Mark the nice bounds of vases, ewers, and urns;
> Round each fair form, in lines immortal, trace
> Uncopied beauty and ideal grace."

of ancient Etruria. The gateways of their cities were of a singular construction, and built with squared stones. The largest entrance into Volterra is called the gate of Hercules, and is composed of a magnificent arch built with nineteen large vaussoirs. Here are also other gates at the same place, and a smaller one of Etrurian architecture is to be seen at Fesolè.

The domestic architecture of the Etrurians is peculiarly distinguished by the invention of the Atrium, a fore-court to the house, by arches, and by an order of column, and has since been adopted by the Roman and Italian architects as a distinct order, under the name of Tuscan. The name Atria is said to have been derived from the Etrurian colony Adria, or Atriæ, where they were first used. These courts were appropriated for the residence of the servants and slaves, whom the Etrurian architects were desirous to place at a distance from the apartments of the master, that he might not be disturbed by the noise of such a crowd, and that they might guard the house. This place simply consisted of a parallelogram surrounded by a colonnade.*

Of Pompeii, whose architecture may be classed with that of Etruria, Sir William Gell very justly observes that nature has shed over the face of the surrounding country all her most enchanting beauties—beauties which inspired the muse of Virgil and afforded a retreat to the Cæsars.

> "Illo Virgilium me tempore dulcis alebat
> Parthenope, studiis florentem ignobilis otî."
> (Virgil.)

> "Pompeia! disintombed Pompeia! here
> Before me in her pall of ashes spread—
> Wrenched from the gulf of centuries—she whose bier
> Was the embowell'd mountain—lifts her head,
> Sad, but not silent! Thrilling in my ear
> She tells her tale of horror, till the dread
> And sudden drama, mustering in the air,
> Seems to rehearse the day of her despair."
> (Dr. Beattie's Heliotrope, or Pilgrim in Italy.)

This city† was of no great magnitude, being about three thousand three hundred and thirty yards in circumference, or nearly two British miles; and though it contained the most beautiful and chaste edifices, was a city rather of lanes than of streets. As to its origin, the probability seems to be that Pompeii was founded by the Greeks, a supposition strongly corroborated by the style of its architectural ornaments, and the buildings which are in that character.

The houses at Pompeii which remain, though in a state of desolation, leave but little to be desired upon the subject of those minor details, with which, until the discovery made by the removal of the ashes over that city, we were almost wholly unacquainted; and although no dwelling hitherto uncovered could vie in extent with the magnificent villas which belonged to Pliny or Lucullus,‡ and

* The Etrurian buildings in which arches are found, are amongst the most ancient examples of their architecture; and several of them, but more especially their subterranean reservoirs, prove that their architects were well acquainted with the construction of the arch. They had a public reservoir built underground, twenty-four feet from the pavement to the crown of the arch, fifty-six feet long and thirty wide. Several remains of the ancient Etrurian tombs have been discovered, the greater part of which are underground. The column adopted by these people is distinguished by its form and proportion from those of any other nation of their time; profiting, as they did, from the Greeks, and yet obtaining the honour of the invention. Vitruvius gives a description of this order, and states that in his time (that of the Emperor Augustus) there were several Etrurian temples in Italy, supposed to be at Tusculum.—(Forsyth's Italy.)

† The destruction of the city of Pompeii, which was overwhelmed by showers of burning *ashes* from Vesuvius during its eruption, took place, according to Pliny the younger, who was an eye-witness of that catastrophe, August 24, and in the second year of the reign of the Emperor Titus, or A.D. 73. "Herculaneum was overwhelmed by torrents of boiling *lava*. The former comparatively offers but little obstruction to the labourer; but the latter, having insinuated itself in the consistence of molten lead into every crevice, and become indurated like marble, requires the skill and perseverance of a miner to dislodge it, and that by very slow degrees."—(Heliotrope, note 38, canto II.)

‡ Lucullus had many superb villas; that of Marius alone he purchased for a sum equal to eighty thousand pounds

still less with the splendid imperial residences, yet by comparing their remains with the ordinary houses as described by Vitruvius, we shall find them fully adequate to enable us to form a tolerably accurate idea of their inhabitants, if not of the beauty and order of the more early edifices of Rome.* The great feature in the arrangement of the ancient house as distinguished from the modern, was the internal court. Those courts were universally found to be surrounded with apartments, which, lighted from within the colonnade, at first sight seem to have afforded little possibility of the domestic concerns of the family being overlooked by any one not included within the walls.† In this there was one advantage they possessed, as we may conclude from Plautus and Seneca,‡ who speak of the annoyance the neighbours were subject to from the disorderly luxury of those who, changing night into day, indulged in the false refinement of the age.

Many causes for the houses having acquired this conventual form may be assigned. In the early ages of society each might be considered as representing a small city or community to which the surrounding or outer court-wall gave security; and subsequently, when every man assumed the right of overlooking his more wealthy neighbour, when any departure from a frugality, ordained by law, was considered criminal, it became necessary to the proprietor to secure himself against the misrepresentation of his private enemies.

A jealousy, somewhat approaching that of the more eastern nations, seems to have prevailed towards the female part of the family, to whom the most remote portion of the house was appropriated; an inner court, around which their rooms were distributed, was only accessible through another, where a similar arrangement existed for the accommodation of the men and servants.

ARCHITECTURE OF THE ROMANS.

"They tell us Rome was glorious, not profuse,
And pompous buildings once were things of use."
(Pope.)

FOUNDATION OF ROME.

The Capitol of Rome, or as it was afterwards called, the "Eternal City," was founded by Romulus and Remus, twin brothers, who led here a colony of Trojans that had migrated from Troy, and were driven upon the coast of Tuscany.§ As to the exact year of the foundation of Rome historians are not agreed. Varro places it in the third year of the ninth Olympiad, that is, four hundred and thirty-one years after the destruction of Troy, and seven hundred and fifty-three before the Christian era. The Romans (according to Plutarch‖ and some other writers) began to build on the 21st day of April. This day was then consecrated to Pales, goddess of shepherds, (Romulus and Remus having been educated at the expense of a shepherd named Faustulus,) so that the festival

sterling. His Villa Misenensis (transformed into a monastery A.D. 488) was unrivalled for its beautiful site and artificial embellishments.—(Heliotrope, note 45, canto II.)

* The interior of the houses at Pompeii were all panelled on their sides, of an oblong form, with carved mouldings, in which panels were painted figures.—(B.)

† The only light received in the rooms was through an aperture over the door, which was formed of trellis-work: glass, as used in windows, was almost unknown at Pompeii. Indeed, two hundred years after it was built we find Vopiscus numbering it as luxurious among the extravagances of the merchant Firmas, whose riches enabled him for some time to contest the sovereignty of Egypt with the troops of Aurelian.—(Sir William Gell's Pompeii, p. xviii.)

‡ See Plaut. Mil. Glor. xxiii.

§ By this it appears the Romans were of Trojan extraction, but more probably they were a mixture of the Pelasgi, who had before overrun the greater part of the world.—(B.)

‖ Plutarch's Life of Romulus.

of Pales and that of the foundation of the city were afterwards jointly celebrated at Rome on the same day.

PRIMITIVE CITY OF ROME.

The mode adopted in marking out the site for the foundation of the city of Rome is interesting, inasmuch as it was the custom among the ancients to consecrate the walls of cities to their gods, and to consider them sacred in virtue of that consecration.* The site fixed on for the city was the Palatine hill, and the boundary line was marked out by Romulus himself, to perform which he yoked, says Hook,† a bull and a cow (the symbol of marriage) to a plough, the coulter of which was of brass. He proceeded to form the boundary, and to hold the plough himself, making a deep furrow for its line of *demarcation*. All the people followed the plough, throwing inwards the clods of earth which the ploughshare sometimes turned outwards; and when they came to the place where they intended to make the gates, they took up the plough and carried it. Hence the Latin *porta*, a gate, *a portendo aratrum*. The people throwing inwards the clods of earth was a significant ceremony, importing that plenty in cities is owing to fruitful lands about them and without; how careful the inhabitants ought to be to bring everything from abroad which may contribute to the public welfare. The whole length of ground where the plough had passed, was by the ancients looked upon as sacred and inviolable. For this reason it was that they thought themselves obliged to spend the last drop of their blood in defending their walls, and to break through them was a crime of the highest nature. But the gates were not sacred, otherwise, as Plutarch observes, the city could not have been supplied with the necessaries of life without a breach of the law, nor could the unwholesome things have been carried away.

As Mount Palatine stood by itself, and was not joined to any other hill, the whole was enclosed within the line made by the plough, which formed almost the figure of a square, for which reason Dr. Hol calls it Roma Quadrata. The walls were built upon this line, which was therefore called Pomœrium, according to Plutarch from *pone mœnia;* but Livy defines the Pomœrium to be that square of ground both within and without the walls, which the augurs‡ solemnly consecrated, and on which no edifices were suffered to be raised.

When Rome had received nearly the utmost perfection which men, rude and indigent, were able to give it, it consisted only of about one thousand poor huts, which had no upper stories nor any kind of ornament. The walls even of Romulus's palace, a monument of primitive simplicity, dear and venerable to the eyes of the Romans, were made of stakes and bulrushes, and it was covered with straw.

> "Quæ fuerit nostra si quæris regia—
> Adspice de canna straminibusque domum,
> In stipula placidi carpebat munera somni...."
> (Ovid's Fast. lib. iii. v. 183.)

Every man having chosen his ground built upon it according to his fancy, without any regard to regularity or beauty; by this the streets (if streets they might be called) were both crooked and narrow. Rome therefore, properly speaking, was at first but a sorry village, whereof even the prin-

* Fast. lib. iv. v. 819, &c.

† Hook's History of Rome.

‡ Soothsayers were always consulted to ascertain whether their gods were propitious to the intended spot. This they determined by flights of birds of certain kinds over the appointed place on a certain day. Here the vultures were used as the omens. Sometimes two spots were set out for the purpose, and over that which the most of these birds passed on a certain day was to be the site, and this was the case at Rome between Romulus and Remus at the first building of the city.—(Hook's Roman History, vol. i.)

cipal inhabitants followed their own ploughs; and this primitive city so continued until it was destroyed with fire by the Gauls. After this time it was differently rebuilt; but such was the beginning of the Capitol of Rome, that afterwards subdued almost the whole world, and became so renowned for its splendid buildings during its imperial state, that even by the moderns it obtained the name of the "Eternal City."

ETRURIAN ARCHITECTURE IN ROME.

The architecture of the Romans owes its origin to their neighbours the Etrurians, who flourished in arts and science many centuries even prior to the European Greeks, for it was under the government of the Tarquins, who were of Etrurian birth, that were first sown the germs of that architectural greatness which ever afterwards so conspicuously distinguished the Roman taste. At this period public utility and convenience alone dictated their works, solidity and durability being exclusively consulted in their execution. The Etrurian structures were built of large uncemented but regular blocks of stone, which engendered that masculine simplicity and magnitude that gradually expanded with the increasing prosperity of the Roman state.

The original walls of Corytum (Cortona), built by the Etrurians before Tarquin took the sceptre at Rome, and there introduced the architecture of his own province, still appear round the city as foundations to the modern, which were built in the thirteenth century: the Etrurian works are most entire towards the north. These huge uncemented blocks have resisted on that side the storms of near three thousand winters, while on the south they have yielded to the silent erosion of the sirocco. None of the stones run parallel; most of them are faced in the form of trapezia, a construction peculiar to the ruins in Tuscany: it is far more irregular, and therefore, I presume, more ancient than the Etrurian works at Rome.* No part of these walls remain fortified, as the besiegers who laid Arezzo open, also demolished the few defences of Cortona.†

This part of the Roman empire is supposed to have given rise to that order of architecture which the Italians call the Tuscan, from its introduction being attributed to the Etrurian architects in the early edifices of Rome, and which is described by Vitruvius. Besides the early walls of the Etrurians in the Roman Capitol that excite our astonishment, and seem formed for eternal duration, are the immense subterraneous arched sewers of Cloacina. Here also exist the massy traces of the foundation of the Capitol laid by Tarquinius Superbus, which may be seen under the palace of the senators.

GRECIAN ARCHITECTURE IN ROME.

The fall of Syracuse, at the end of the Punic wars, into the hands of the Romans, with its wealth, and the possession of all the other Grecian towns of Sicily, now inspired the Romans with a taste for Grecian art and a love of the ornamental, which was further strengthened by the Macedonian conquest, and the total subjugation of the Grecian states in the second century. Yet it was not until the subsequent reduction of the Asiatic dominions that the Romans were enabled to indulge the taste they had thus acquired; for they derived their taste, their elegances, and their arts from Athens, as the Athenians had from Egypt, where the arts originated.‡ Then it was that the

* For a description of the checkered walls of the ancients, see dissertation on stone walls in the body of the work.—(B.)

† Forsyth's Italy.

‡ Until this period, under the Consuls, Roman architecture was principally composed of bricks, united together with peculiar neatness, and rendered more solid than stone, as time has proved, by a particular species of cement, remarkable for its tenacity and increasing durability. This most valuable art however has entirely escaped the detection of the moderns, although it is known volcanic tufa and bitumen constituted, like that of the Egyptians, the principal ingredients.—(F.)

opulence and luxury of the East poured into Rome, and diffused a general order for splendour and costliness in all the works of art that were undertaken in the city. This was on the return of Sylla from the Mithridatic war, when he transplanted the Grecian arts into Rome by the Grecian models which he had brought from these people, renowned for their architectural works; and thus was paved the way for the magnificence which afterwards arose under the emperors, and constituted the architectural glory of Rome.*

ROMAN ARCHITECTURE IN THE CAPITOL.

This brilliant period opened with Augustus, (at the time that Vitruvius wrote his history of classic architecture,) whose taste for the arts caused to be brought from all parts of Asia and Greece the most scientific professors, to execute the various works he had planned,† and which was eventually followed up by Titus and Trajan, and at length produced such riches, splendour, and architectural pomp under the Antonines, that the golden age of the imperial city has been justly affixed to the era of their reigns. The Romans now adopted the three Grecian orders; but their taste, impatient under control, broke forth from these prescribed rules of Grecian art; they altered the proportions and contours of the mouldings, and added the Tuscan to their list, and afterwards formed the composite. They often indiscriminately blended the members of the different orders, and overcharged the whole with the most extravagant excess of decoration they could invent, till at last they had five orders of their own.‡ At the same time it cannot be denied, that notwithstanding this departure from Grecian simplicity, by the mixture of style and luxuriancy of ornament, the Romans actually produced edifices in such a striking character of magnificence and grandeur, that they threw into shade some of the finest structures of the Greeks.§

TUSCAN ORDER.

The Tuscan order at Rome is so altered in its members since its first introduction there, that it is in a great measure assimilated with the Doric. The place of its origin was in Tuscany, and the column contained in its original proportion that of seven of its diameters in height. For a detailed description

* At the close of the war between the Republic of Rome and the Achæan league, Corinth was taken and destroyed by Mummius, the Roman general: it was afterwards rebuilt and peopled by Julius Cæsar. The Romans therefore imbibed a taste for the sciences and arts so assiduously cultivated by the Greeks, and felt some reverence for those by whose ancestors their favourite studies had been carried to perfection.—(H.)

† Augustus was content to inhabit a plain, unadorned mansion at Rome, while he displayed all his riches and munificence in edifices devoted to public use, and prided himself in his last moments, that "having found Rome of bricks he had left it of marble."—(Sueton. in August. c. 28, 72.)

‡ The Greek column and entablature are found co-existing with the Roman arch and vault in every work of the empire. A combination so unnatural broke that unity of design which had prevailed here during the Etrurian period; it soon altered the native forms and proportions of the Greek orders; it amassed incomparable ornaments, and beauty disappeared under the load of riches.—(Forsyth's Italy.)

§ In this period the forums arose, which are represented by the ancient writers as alone sufficient to eclipse the splendour of every other city. There were two kinds of forums; the Fora Vendia and the Fora Civilia; the former were merely markets, the latter intended, as the name implies, for the transaction of public business. The Forum Trajani, though the last in date, was the first in beauty. This matchless edifice of Trajan consisted of four porticos, supported by pillars of the most beautiful marble; the roof rested upon brazen beams, and was covered with plates of brass; it was adorned with statues and chariots all of brass; the pavement was of variegated marble. The entrance was at one end by an equilateral arch, at the other end was a temple; on the one side a basilica, and on the other a public library. In the centre of the whole square rose the celebrated column of Trajan, surrounded on the outside with historical sculptures of this hero's many achievements, winding round the column in a spiral line from the base to the summit, and crowned with a colossal statue of that mighty general. Apollodorus was the architect of this wonderful pile; and so great was the beauty (we might almost say the perfection of architecture) and so rich the materials, that those who beheld it seem to have been struck dumb with astonishment, and at a loss to find words to express their admiration.—(Gibbon.)

of this plain, simple, but useful pillar, see Vitruvius, the only authenticated source on the subject of this order, where its proportions are preserved.

DORIC ORDER.

The Doric order appears here in very few edifices, and so Latinized that we lose the original order. In the Roman temples (says Forsyth) columns were a mere decoration, or at most supported the pediment alone. In the Greek they formed an integral part of the edifice; not inserted in the wall, but rather formed the wall itself; hence arose the necessity of a difference in their proportions. At Rome the ancient Doric column is eight diameters in height. At Athens the greatest height of the column is about six diameters and a half, and at Pæstum five.*

IONIC ORDER.

The Ionic order in Rome, whose column is nine diameters high, is too meagre at the Coliseum; too clumsy for its entablature at Marcellus' Theatre; irregular, nay unequal, at the Temple of Concord; the volutes too small and full of disproportion in that of Fortuna Virilis. Nowhere in Rome is it comparable to the Grecian Ionic on the Ilissus, or in the Erecthean at Athens, which latter may be proposed as the canon of this chaste and extremely beautiful order.

CORINTHIAN ORDER.

We have seen that the Romans, in borrowing the Grecian architecture, adopted it with various peculiarities of taste and manner; but they most particularly appropriated the use of the Corinthian order, which on account of its decorative character was peculiarly adapted to the general splendour and costliness of their buildings. It was the only order executed with any degree of perfection in Rome, where to this day may be found some of its finest models for the study of the architect, such as Jupiter Stator in the Campo-Vaccino and at the Pantheon.† For variety they enriched the capitals with the olive, the laurel, and the acanthus, in foliage very differently disposed. For further variety they brought griffins, eagles, cornucopiæ, and other emblems into the abacus and helix of the capitals. In the entablatures may be found every variety of moulding, and in the friezes pateras, musical instruments, thunderbolts, and other symbolical ornaments appropriate to the edifice into which the order was introduced. In the Pantheon, in the Campo-Vaccino, the Capitol, the Via Sacra, everywhere in Rome have they left us a richer Corinthian than can be found in Greece, where the order seems to have been rare and naked‡.

COMPOSITE ORDER.

This order is of Roman origin, and was composed from the Corinthian and Ionic orders, and applied

* The three Doric temples at Pæstum in Italy, situated on a pestilential plain, are the oldest Grecian orders now in existence. Considering them, and contemplating their solidity, bordering upon heaviness, we are led to consider them as an intermediate link between the Egyptian and Grecian manner, and the first attempt to pass from the immense masses of the former to the graceful proportions of the latter; but in one of these temples, that of Ceres, the columns are too much swelled, being so puffed out as if they were bursting asunder under the load they have to support: in every other part of the temple there is a sublime grandeur. According to the learned Mazzochi, Pæstum was founded by a colony of Dorians, from Dora, a city of Phœnicia, about six hundred years B.C.

† The columns in the temple of the Sibyl at Tivoli are of Grecian origin, being designed and executed by a Grecian architect. There is a great peculiarity in the foliage of these capitals, which differs from every other Corinthian, and the frieze is ornamented with heads of buffalos, from the horns of which are suspended festoons of flowers and fruits: in the metopes are pateras.—(See Piranessi, Roman Antiq.)

‡ Forsyth's Italy.

to their triumphal arches. That in the arch of Titus is the most beautiful in proportion, chasteness, and richness. The one in Septimus Severus' arch is heavy and ill-proportioned in all its parts.*

The peculiarities of Roman architecture are as remarkable as they are various. With their own original greatness of manner they combined the knowledge and cultivation of the arch, as may be seen in their aqueducts, the first of which was erected by Appius Claudius in the year 313 B.C.,† which powerfully operated in changing not only the principle but the forms of architecture as hitherto practised in Greece. The Romans brought the use of the arch to the highest possible perfection, as we see in the triumphal arches of Titus and Septimus Severus, and by aid of its operations the Italians afterwards exhibited the greatest mathematical skill in the construction of their sublime edifices.‡ The successive conquests, and almost unbounded territorial accessions of the Romans, poured into their courts such an acquisition of private as well as public opulence, that innumerable individuals became enabled to indulge in the predominating taste that peculiarized the city under the imperial sway, which offered a much wider expanse for the display of architectural greatness than Greece ever attained. Marcellus, happy in victory as well as a fine genius, brought from Greece one of the most beautiful and regular pieces of architecture extant, which was called after his name. And Pompey the Great, though an unfortunate hero, is reported to have built the first amphitheatre of stone in the city of Rome.§ The baths of Dioclesian, the palace of Nero, the Rotunda, the theatres, and upwards of fifty temples dedicated to their deities, their triumphal arches, &c. give us a vast idea of the perfection of architecture at Rome in its flourishing state under the consuls and emperors. They were so much given to building, that they endeavoured to excel each other in pomp and magnificence in the public edifices they erected, for the honour, ornament, and use of the city. Hence then that unrivalled splendour of imperial Rome. It is a city of monuments whose grandeur and beauty have attracted the wonder and applause of an admiring world.

ROMAN CITY HOUSES.

The early houses in the city of Rome were but of one story high, and surrounded by a court with a colonnade, and the only light received into the rooms was over the door, and even this was borrowed.‖ The houses only began to be constructed with two stories towards the end of the republic, and the

* The pilasters of the Roman orders do not differ from the columns.—(B.)

† These aqueducts ran a distance of from twelve to sixty miles, and conveyed whole rivers through mountains and over plains, sometimes underground and sometimes supported by arches, to the centre of the city, so that Rome in twenty-four hours was supplied with five hundred thousand hogsheads of water. Two in particular, the Claudia and Anio nova, were carried over arches for more than twenty miles, and sometimes raised more than a hundred and twenty feet above the level of the country. The channel through which the water flowed in these aqueducts (and in one of these, two streams rolled unmingled the one over the other) was always wide and high enough for workmen to pass and carry materials for repair, and all were lined with a species of plaster hard and impenetrable as marble itself.—(Eustace's Classical Tour through Italy.)

‡ From whence does the invention of the arch proceed? It is nowhere traceable among the ancients, scientifically constructed, before the age of Alexander the Great, in the fourth century B.C.; and we have every reason to believe the Egyptians were totally ignorant of it, not only from its absence in any relics of their buildings, but from the rude mode in which they have constructed the passages into the pyramids. The arch of the Cloaca Maxima, built by the Tarquins, is the earliest we are enabled to discover, which inclines us to think we are indebted to the Etruscans for its invention, but that the Romans brought it to perfection by first determining its powers both experimentally and mathematically. The knowledge of it however has produced the greatest revolution in the practice of the art of building; and on account of its utility, ornament, and strength, it is now universally adopted.—(Boid's Analysis.)

§ Tacit. Ann. lib. xiv.

‖ We are to recollect that the Romans were not a "genus ignavum, qui tecto gaudet et umbra." (Juvenal.) Not a domestic people, their society was to be sought in the Forum and porticos. The doors of their houses were left open or unclosed during the single meal which sufficed for the day, that it might be seen no one exceeded the bounds of frugality prescribed by the laws; but when civilization and luxury were introduced, the size of their houses was enlarged to excess, so that four hundred slaves do not appear to have been an extraordinary number to have been included under one roof. Tacitus says these were all decapitated if their master was murdered, because he had not been sufficiently protected. Within the walls of the house and garden was frequently produced every necessary of life.—(Sir William Gell, pp. 164, 165.)

uppermost apartments were then the sitting, dining, and drawing-rooms. The streets of ancient Rome were very narrow in general, and when Nero rebuilt the city after the dreadful conflagration in 64 B.C., many of the Romans complained of his conduct, alleging that they were too much widened, inasmuch as they let the heat of the sun indiscriminately upon them.*

Though the streets of Rome were still comparatively narrow, yet the houses were now built remarkably lofty; they generally at this period rose to six, seven, or eight stories in height. They were permitted by Augustus, even in his restraint upon the popular humour, to ascend no less than seventy feet, and they were allowed by Trajan, even in his greatest restraint, to mount but as high as sixty.†

ROMAN PALACE.

Nero was the first who ventured to expend the public treasures in the erection of an imperial residence, and built that celebrated palace of which Pliny relates some wonderful particulars, and which from the gold that shone in such profusion on every side was called Domus Aurea. In the vestibule stood a colossal statue of Nero of the immense height of one hundred and twenty feet; there were three porticos, each a mile in length, and supported by three rows of pillars. In the palace the rooms were lined with gold, gems, and mother-of-pearl. The ceilings of the dining-rooms were adorned with ivory panels, so contrived as to turn round and scatter flowers and shower perfumes on the guests. The principal banqueting-room revolved upon itself, representing the motions of the heavenly bodies. The baths were supplied with salt water from the sea, and mineral water from the Albula.‡

ROMAN VILLAS.

The well-known term *villa* signified a Roman country seat; the superior ones were called palaces and were of different kinds. Town-houses, or rather winter houses, *æstiva; villæ suburbanæ* or æstival dwellings, a citizen's villa, and subterraneous houses for the heat of the summer; or habitable grottos,§ built by the great men, were exceedingly magnificent. Of this character were Hadrian's villa at Tivoli, and Gardian's on the Via Prænestina; of such extent were these that they resembled towns.‖ Hadrian's villa alone formed a circuit of nearly ten Italian miles.¶ In ancient Rome the villas were generally erected on the tops of hills; such was the villa of Sallust, the historian, on the Pincian hill, adorned with so much magnificence that it seems to have excelled even the specimens of Asiatic grandeur in splendour and luxury, and to have become the favourite resort of successive emperors.**

* Nero was passionately fond of building, and first made Rome a regular city. He ordered that each house should be surrounded by its own court, or curtain-wall; but some thought that regulating the width and disposition of the streets and height of the houses by lessening the shade, did not conduce to the health of the inhabitants.—(Tacit. Ann. lib. xx. c. 4. 3.)

† Tacit. Ann. lib. xv. c. 4. Variorum edit. Would not this be a good law in our cities, and conduce more to the health of the inhabitants?—(B.)

‡ Suetonius' Life of Nero, 31. The palaces at Rome, though from their magnitude they contribute not a little to that general air of magnificence which pervades the city, are not exempt from faults in the details. It is objected to them that they are built rather for the spectator than for the tenant, that hence the elevation is more studied than the plan; that some are mere fronts, so crowded with stories as to suggest the idea of a lodging-house rather than the residence of a prince.—(Evans's Classic and Connaisseur in Italy, vol. i. p. 322.)

§ See Seneca, Cæus. ad Helv. ix.

‖ Vesp. Hist. Aug. ii. 274.

¶ To form an idea of this imperial residence, we must imagine to ourselves a town, or rather a city, composed of temples, palestra, gymnasiæ, baths, pleasure-houses, lodgings for officers, friends, slaves, and soldiers, and an infinity of other buildings both of utility and show. In this villa Hadrian, with much good taste, imitated all the best buildings of Greece, such as the Lyceum, the Academy, the Prytaneum, the Portico, the beautiful temple at Thessaly, and the painted Portico at Athens. He had also among the gardens and pleasure-grounds representations of the Elysian fields and the realms of Pluto.—(Eustace's Classical Tour.)

** Tacitus.

The gardens of Lucullus are supposed to have bordered on those of Sallust, and, with several other delicious retreats which crowned the summit and brow of the Pincian Hill (Monte Pincio), gave it its ancient appellation of Collis Hortulorum. To the intermingled graces of town and country that adorned these fashionable mansions of the rich and luxurious Romans, Horace, when addressing Fuscus Aristius, says,

"Nempe inter varias nutritur sylva columnas,"

as in the verse immediately following,

"Laudaturque domus, longos quæ prospicit agros,"
(Hor. Ep. i. 10.)

he evidently hints at the extensive views which migh tbe enjoyed from the lofty apartments erected expressly for the purpose of commanding a wide range of country. Of all the Roman villas, we have the most complete account of the one erected by the younger Pliny near Tifernum (now Città di Castello) in Tuscany, called Tusculan, and which he has fully and minutely described in his epistle.*

DECLINE OF ROMAN ARCHITECTURE.

Civil feuds and desolating wars at last interrupted the progress of the arts, and after a few attempts of Septimius Severus and Dioclesian, they gradually sunk into a state of corruption, and were finally degraded under Constantine, who commenced the destructive work of spoliation by removing all the finest parts of the architectural structures in Rome, to adorn some less magnificent architectural creations of fancy in his new city of Constantinople.† This example established a ruinous precedent, and the general destruction of classic architecture followed. The love of the arts, as a science, totally disappeared; and architects becoming destitute of both taste and skill, were now mere depredators and barbarous compilers of one another's works. One structure, in which reigned beauty and solidity, for the sake of the materials, was often pulled down, to erect another equally devoid of taste or strength; till incursions of barbarians at length extinguished the last lingering flower of the art, and gave a deathblow to the remains of Roman greatness.

LOMBARD ARCHITECTURE.

The successive inroads of the various tribes of barbarians that came from the north in the fifth century, and inundated Italy after Constantine had withdrawn the nobility to his new seat of power at Constantinople, were possessed with such a spirit of demolition and ruin, that the whole empire as well as the city of Rome, in a few years exhibited one continued scene of pillage and devastation. The mixture of the various conquering tribes then inhabiting Rome, produced a Babel of languages, in which the Latin tongue was soon lost; the social virtues disappeared, and the arts seemed for ever buried under the ancient city; the spirit of science vanished with the glory of Rome, the most eminent poets and philosophers left the empire, and the remaining societies sunk into the most degraded state of obscurity.‡

In this state architecture soon sunk under the intruders Alaric, Odoacer, and Gensericus, so that the

* Lib. v. Epist. 6. The villas are to this day the Ocelli Italiæ. There Casinos generally stand to advantage in the park. Light, gay, airy, and fanciful, they seem to court that load of ornament to which all architecture must here be subservient. Some of their fronts are coated with bassi-rilievi in profusion, and their porticos composed of ancient columns from other edifices. The Belvedere above the building is often a blot on the symmetry,—an insignificant object too conspicuous,—a hut stuck upon a house-top, and seldom placed in the centre.—(Edwards's Lanzi, vol. i.)

† It was an abhorrence of the Pagan edifices which caused the Christians to demolish them; but it is singular to observe that the Pantheon should have been spared.—(Gibbon's Decline and Fall of the Roman Empire.)

‡ Eustace's Classical Tour.

Goths obtained exclusive dominion in the city under Theodoric. In turn the Goths were expelled,* and succeeded by the Lombards in the year 568 A.C. But the Lombards were not united in one government until the year 590, under the administration of Queen Theodolinda, when the whole of Italy (with the exception of Rome and Ravenna), from Rhegium to the Alps, acknowledged their dominion. Theodolinda embraced the Christian faith, encouraged the arts, endowed numerous ecclesiastical establishments, and caused many edifices of this kind to be built all over the empire. But on account of the incessant state of hostility in which the country had hitherto been engaged, they were acquainted with no other style of building beyond what they had practised in erecting castles, and which they naturally transferred to their domestic architecture and religious edifices, with the same narrow windows, though somewhat higher, and with round arches to the heads.†

This mode of construction was so established in Italy under the dominion of the Lombards, that it even predominated after their expulsion by Charlemagne in 774,‡ and afterwards became, with different degrees of improvement, the prevailing style of architecture throughout Italy, Germany, and France, under the appellation of the Lombard style. Bede, Spandani, and others describe the religious buildings of the Lombards as most magnificent; but such splendour could only be comparative with the times, and consisted chiefly in the valuable Catholic ornaments with which they always adorned the interiors.

ITALIAN ARCHITECTURE.

In the thirteenth century the darkness in which Rome and its provinces had been enveloped for nearly seven hundred years began to pass off,§ the arts and sciences again to dawn, and a new race of geniuses, that of the Italians, to spring up.‖ Architecture afterwards, through Bramante, and under the patronage of Pope Julius II., continued to progress; and in the sixteenth century, during the

* We shall pass over the architecture of the Goths, because they scarcely made any footing in Rome, and the classical style of architecture was still preferred.—(B.)

† Their domestic edifices had generally attached to them lofty round towers, with overhanging conical-pointed turrets; and the towers had numerous small windows, finished with circular-headed arches at the top. The Château or Castle of Chillon, situated between Clarens and Villeneuve, rendered celebrated by Lord Byron in his poem, the "Prisoner of Chillon," is in this style of architecture, and the hanging tower at Pisa is also in the Lombard style. In fact, the Lombard was the prototype of the Norman architecture, which was introduced into England by William of Normandy and his followers, and also with little variation over the greater part of Europe by the feudal barons during the reign of darkness.—(E.)

‡ Such was the ignorance of those times, that this French monarch could not even write his own name.—(Hallam's Hist. of the Middle Ages.)

§ Previous to this period, says Murat, and about the year 1300, speaking of the age of Frederick II., the manners of the Italians were rude: a man and his wife ate off the same plate; there were only forks; no knives, nor more than one or two drinking-cups in a house; candles of wax and tallow were unknown; a servant held a torch during supper; the clothes of men were leather (jerkins) unlined; scarcely any gold or silver was seen on their dress; the common people ate flesh but three times a week, and kept their cold meat for supper; many did not drink wine in summer; a small stock of corn seemed riches; the portions of women were small, their dress even after marriage was simple; the pride of the men was to be well provided with arms and horses, that of the nobility to have lofty towers attached to their dwelling-houses, of which all the cities in Italy were full. (Murat, Dissert. 23.) In the original work of Crescentio, a native of Bologna, who composed a Treatise on Rural Affairs, about the year 1300,—illustrating the customs, and among other things the habitations of the agricultural class,—the Italian farmhouse at that period, when built according to his plan, appears to have been somewhat commodious both in size and arrangement, and thatched; whereas at a later period they had tiled roofs. (Crescentius in Commodum Ruralium. Lovanicæ, absque anno, tom. iii. p. 127.) This old edition, containing many illuminations, or coarse wooden cuts, has been translated into French by M. de Palmy. In the Italian houses of the gentry the ground-floor was devoted to the servants, the upper part to the family; and there was the same arrangement in France.

‖ About the year 1388 or 1400 an Academy was formed at Florence, where there were great and noble men, of mind as well as genius, who by inspecting those magnificent and classic ruins of their predecessors which had escaped the fury of the Goths and Vandals, once more restored the arts; and amongst the foremost of these great men where the Medici family, and Arnolfo and Lorentio Ghiberto; but Filippo Brunelleschi, born in 1377, is generally considered as the restorer of ancient architecture, as well as the founder of the modern classical style of building. After having prepared his mind by studying the writings of ancient authors and the ruins of Roman edifices, which he carefully measured, he discovered the proportions of the orders, and recognizing the simple gracefulness of the ancients, founded a system upon lasting principles, whereby

pontificate of Leo X., flourished those great masters Michael Angelo, Vignolo, Palladio, Scammozzo, Serlio, whose palaces and villas are, and will long continue to be, the admiration of connaisseurs and men of taste. To the unremitted assiduity of these distinguished artists in the study of the Roman edifices, and to their invaluable publications, the world has been chiefly indebted for the elucidation of the principles of ancient art, particularly Palladio.*

The Italians had materials in abundance, with eligible sites formed by nature, and ancient models at Rome were presented on every side. In such circumstances, and with such guides, who would not have expected to have seen architecture again carried to the highest perfection, and even the ideal, fair, and beautiful, so long conceived in theory, at length realized in practice? But such was not the result. Architects began to imagine that with so many advantages it would be mean to copy, and easy to surpass antiquity; they therefore departed from the ancient system of having public edifices of a single story in height, and began by placing column over column upon all occasions.† The Italians also sought in the luxuriancy of an irregular imagination, forms more fair, combinations more majestic, and even, as they thought, proportions more beautiful than the ancients could have beheld. They all made the attempt and have failed, and by this failure proved that in the same proportion as we follow or abandon the ancients, we approach or deviate from perfection.‡

It must be acknowledged, however—notwithstanding this disapprobation which we have ventured to pass upon Italian architecture, though based upon that of the ancients—that the fifteenth century has produced edifices inferior only to the models of antiquity,§ and still sufficiently great and numerous to render Rome the first of cities. The grandeur that results from these modern

he was enabled to construct with beauty and solidity, and hence a general taste for the principles of the art began to show itself among the Italians. Leo Baptista Alberti, born A.D. 1398, was the first modern author who afterwards published a treatise on architecture, from which he has acquired great reputation, and is justly styled the modern Vitruvius. Following the steps of Brunelleschi, he reformed by his precepts and designs many of the abusive and barbarous practices which then prevailed among his countrymen.—(B.)

* Palladio was born in 1518, and died in 1580; he has the exclusive glory of having collected from the writings and ancient edifices a canon of symmetry and proportion, and reducing Roman architecture under all its forms to a regular and complete system, combining them anew: there are in all the edifices erected under the direction or on the immediate plans of Palladio, a noble simplicity, and beauty, symmetry, and majesty, that abundantly compensate petty defects, and furnish all the ends of architecture by producing greatness of manner and elegance of design.—(R.)

† The ancients in their classical architecture, with a single exception, never placed a column over a column; if height was required the columns were made loftier, by which a sublime grandeur was produced. In our country mansions, wherever the porticos are carried only to the height of one story, they have always a poor and mean appearance when compared with those porticos which are carried up to the height of the building, surmounted with a pediment. This division of columns has been condemned in the front of St. Paul's Cathedral in London, but I think unjustly, as it is this division of stories that constitutes the Italian style, to which character the building belongs.—(B.)

‡ In modern Rome the darling fault of architecture is excessive ornament, an excess more licentious in the sacred edifices than in the profane, and in sacred buildings more licentious in the most sacred part. Everywhere you see ornament making great edifices look little by subdividing their general surfaces into such a multitude of members as prevents the eye from recombining them. Sometimes indeed these decorations may favour neighbouring defects, but unfortunately the most fantastical practitioners have generally had the greatest success, for of all the modern architects at Rome, few have had more employment than the absurd Borromini. This man seems to have laid it down as a rule, that a straight line is a mark of deformity, and, of course, that the grand study of an architect is to avoid it upon all occasions. Hence cornices and pediments for ever broken, angles and curves in frequent succession, numerous little niches, twisted pillars, columns alternately divided by square blocks, perverted capitals, and all the freaks of a delirious imagination playing with the principle and materials of architecture. (Forsyth's Italy.) As it is always easier to imitate extravagance than simplicity in design, so have the nobler and more graceful studies of Bramante been neglected, and the despised fashionable deformities of Borromini been very generally copied, till it has affected the source of taste at Rome, and at last spread over Italy, Germany, and even many parts of England, which may be seen in the works of some of our provincial architects of the present day.—(B.)

§ Lanzi observes, that when the taste for magnificent edifices revived throughout Italy in the fifteenth century, that many public buildings and ducal palaces which still remain at Milan, Mantua, and Venice, in Urbino, Rimini, Pesaro, and Ferrara, were executed about this period; besides those buildings in Florence and Rome where magnificence contended with elegance.—(Roscoe's Lanzi, vi. p. 104.) Previous to this period, in the cities of Italy the houses had glass windows and iron doors.—(Æneas Sylvius. De Moribus Germanorum, p. 719.)

structures, combined with the majesty of the ancient monuments, induced a French writer* to observe, that Rome was the map of the world in *rilievo,* presenting to the eye the united wonders of Egypt and of Greece, of the Roman, Macedonian, and Persian empires of the world, ancient and modern.

"Omnia Romanæ cedent miracula terræ,
Natura hic possuit quidquid ubique fuit."

But the glory of man, although consigned to marble and bronze, is doomed to perish; even those noble architectural features, which it was believed would last for ever and confer immortal honour and grandeur on the city of Rome, fondly entitled the Eternal, have all in their season flourished and faded away. Of the five eras of architecture in Rome, four have already departed, and left vast and shapeless heaps of ruin to mark the spot where these lofty structures, and not a few of its noblest temples, already forsaken and neglected, once stood. A century or two will probably strew the seven hills with its splendid embellishments, and the future traveller may have to admire and to deplore the ruins of the Medicean as of the Augustan age, the fragments of Pontifical as of Imperial grandeur.

CONCLUSION.

We have now traced the history of domestic architecture in England from its origin to the present period, and briefly noticed its rise, progress, and decline in those countries most renowned for learning, arts, and empire. It therefore only remains to be observed to those whose genius leads them to the sublime study of architecture, that they will find it an interesting as well as useful subject, and be led to see the great distinction there existed between the edifices of necessity and those of cultivated art; and that "every change in the dwellings of mankind, from the rudest wooden cabin to the stately mansion, has been dictated by some principle of convenience, neatness, comfort, and magnificence."

However, while we stand amazed at the magnificent piles which have been raised by human art, we cannot help regretting the want of a fuller source of information on the subject; but the reader will have observed what changes and vicissitudes this art has undergone; what revolutions of opposing fates have occurred in the world; how many populous cities have escaped even the notice of history as to their domestic architecture; how many cities that were once the nursery of the arts and seats of learning, the residence of powerful and successive kings, are now laid prostrate and forlorn; while others have been entirely swept away by the hand of time, and not even their names transmitted to the present generation! We close this portion of our work in the beautiful and appropriate words of Vida:

"Dii, Romæ indigites! Trojæ tuque Auctor, Apollo,
Unde genus nostrum cœli se tollit ad astra,
Hanc saltem auferri laudem prohibite Latinis!
Artibus emineat semper, *studiisque Minervæ,*
Italia, *et gentes doceat pulcherrima Roma!*"

* Montaigne.

"The cloud capt towers
The gorgeous Palaces
The solemn temples
The great globe itself
Yea, all which it inherit,
Shall dissolve,
And, like the baseless fabric of a vision,
Leave not a wreck behind,"

INTRODUCTION.

THE QUALIFICATIONS REQUIRED TO FORM AN ARCHITECT.

"To make an architect, there is required from nature as great and as true a genius as to make a consummate poet; and in the same manner, what is given by nature must be subjected and controlled by rules."—REYNOLDS.

FOR the guidance of those gentlemen who may be about to build, we shall here point out the difference that exists between the architect and the mere builder, it having become a practice among the latter class of the present day to assume the title of architect, without possessing any of the necessary qualifications except that of making mechanical drawings. The duties of a builder and those of an architect are altogether distinct, the difference being as great as between those of a physician and an apothecary, or a counsellor and an attorney. The builder is a contractor for work; the architect a designer, planner, and director of that work, and an auditor of the accounts. But if both be united in the same individual, he cannot rank as an architect.* Who is to check him? His work is surveyed only by himself, and in his charges his employer is entirely at his mercy. Even under a contract, when the specification has been drawn by himself, which is generally the case, he can easily break it if he pleases, or manage matters to his own advantage by employing inferior materials of less value; or if so introduced at first into the specification, the employer is not a sufficient judge of their qualities and durability.

But, on the other hand, there are some gentlemen who, at the outset, are very desirous of showing their taste and learning in architecture, and who confide too much in their own notions, though, at the conclusion of their undertaking, they often find themselves to have been mistaken, and to have involved themselves in heavy expenses.† In questions relating to any profession or calling, it is always referred to and decided upon by persons following that profession alone. We trust our health to a physician, and our property with a lawyer; but in architecture every man considers himself competent to judge, without either previous study or experience, nay, often without any consideration at all; as if to excel in architecture required neither mental acquirements nor studious reflection, or as if architects were merely inspired idiots, and their works the result of momentary impulse or chance.

* The royal architects in the reign of Henry VIII. were obliged to wear liveries, which custom continued as late as the reign of Charles I. Inigo Jones on his appointment as architect to the Board of Works, in the reign of James I., wore this badge.—(From a manuscript in the British Museum.)

† In every period of our history we have had some of these experimentalists. Harrison the historian, who lived in the reign of Elizabeth, records some of their feats and penalties. "It is a world," says he, "to see moreouer how diuerse men being bent to building doo dailie imagine new deuises of their owne to guide their workmen withall. In the proceeding of their works how they set up, how they pull'd downe, how they inlarge, how they restreine, how they ad to, how they take from, whereby their heads are neuer idle, their purses neuer shut, nor their books of account neuer made perfect."

Till this distinction is made, gentlemen must naturally expect to be drawn into those ruinous expenses in which they are so frequently involved.

Neither should the young architect commence his profession until he is well grounded in the sciences: he must be a proficient both in the theory and in the practical part, which will require a series of years, or he will bring disgrace on himself, and fail in establishing his reputation as an architect either for public or private works.* An architect is as necessary to the public service as the physician, and he should be equally learned in his own profession: not so the builder, between the architect and him there is no comparison; the first works with his mind, the latter with his hands; the work of one is the operation of genius; that of the other is only mechanical.†

The architect, says Vitruvius, should not only have ingenuity but application; for being without industry, a fertile imagination never arrives at perfection. I shall not, however, he adds, here rank the builder with the architect; but call him an architect who from his earliest youth, by long and extensive study of the ancients, has acquired abilities to design, and judgment to execute great and useful works, and which edifices can be designed only by men of science and erudition. Further, he should, says he, be not only a draftsman, but understand geometry, arithmetic, and optics; be a good historian and natural philosopher; possessed of a great and enterprising mind, equitable, trustworthy, and totally free from avarice, without which it would be impossible to discharge the duties of his station with due propriety: ever disinterested, he should be less solicitous of acquiring riches than honour and fame by his profession.

Alberti, a celebrated Italian writer, makes the same observation, but further insists on the necessity of an architect having a knowledge of geology and botany, for the purpose of enabling him to understand the nature of his materials, such as the qualities and durability of stones of different kinds, and of timber, minerals, calcined limes, cements, sands, loams, the qualities of water, and the nature and temperature of air, with the species and properties of the various trees which decorate the grounds around the mansion.

Vignolo follows in the same strain, and tells us it is highly necessary for the architect to know geometry, to enable him to develope the various figures which occur in a building, and to delineate regular and irregular plans; to be a good mathematician, to furnish himself with reasons for the capacity of supporting weights (called stereometry), which will often require geometrical and mathematical constructions, to explain them to the operative mechanic, and enable him to describe by a scale the ichnography, or plan for the internal arrangement, and the external part of the fabric, called orthography or elevation, and the various internal sections; all of which are founded on the principles of geometry. He must also understand optics and perspective, to ascertain what part of his edifice will appear, and what recede or fall back, and be lost to the eye when his designs are erected, and also to be enabled to form a picture of the whole edifice before the commencement as if really existing; also a knowledge of landscape-painting, so that the rural mansion or country villa may harmonize with the surrounding scenery. He says further, that he must have such an idea of

* In a MS. in the British Museum on architecture, written by John Aheron, dated 1751, in his preface is the following passage: "Before I begin or enter on the body of the work, I shall take into consideration the vast number of gentlemen who greatly suffer through the ignorance of unskilful pretenders to architecture, by being insensibly led into such vast expenses as not only to affect their fortunes and estates, but even disable them from finishing what they began."—(MS. King's Library.)

† "Genius," says Locke, "is derived from those innate ideas which nature has implanted in some men; knowledge is acquired by refining and improving that genius." A refined taste in architecture was innate in the ancient Greeks, whose works we so much admire, but the Romans acquired their knowledge from observation and mental cultivation.—(A.)

music as will enable him to judge of the nature of sounds, their accords and discords, and their affinity of notes, with a true knowledge of harmonic proportion when called upon to design buildings of consequence, such as assembly-rooms and theatres, in which places vocal and instrumental sounds are more immediately concerned. That the human mind cannot be expected to arrive at perfection in so many different and difficult parts of knowledge is admitted. Vitruvius says it is even rare in the course of a century to find a man superlatively excellent in any profession. Why then, it may be asked, is it expected that an architect should be equal to Phidias in sculpture, Apelles in painting, Orpheus in music, Galen in anatomy, or Hippocrates in medicine?

Many seemingly opposite qualities must then be the attainments of him who aspires to excel in a profession so variously directed. Architecture, says Monsieur Laugier, treating of the subject, is of all necessary arts that which requires the most distinguished talents; there is perhaps as much, or more, genius, good sense, and taste requisite to constitute a great architect as there is to form an historical painter, or poet of the first class. It would be a strange error to suppose it merely operative, and confined to laying foundations, or the building of walls, the art of which requires little more than forming, laying, and binding one stone solidly upon another, and that of mechanically framing the roof. In contemplating the builder's art, all indeed that strikes a vulgar observer are stages of scaffolding, confused heaps of collected materials, and working machines; but these are only as it were the outside of the art, the ingenious mysteries of which, though only discoverable to few observers, excite the admiration of all who comprehend them. We perceive in public edifices inventions of which the boldness implies a genius at once fertile and comprehensive; proportions of which the justness announces a severe and systematic precision; classical ornaments, of which their appropriateness and excellence discover judgment, and an exquisite and delicate feeling and taste. Now, whoever is qualified with a refined mind to appreciate so many real beauties, will, I am certain, be far from attempting to confound architecture with the inferior arts, but, on the contrary, feel strongly inclined to rank it amongst those that are the most exalted.

Every scientific art, it must be remembered, consists of two parts, the theory and the practice, the latter of which appertains peculiarly to its professors, while the former is known to the mechanical philosopher. The architect should be acquainted with the technical terms used by workmen, concerned in the construction of public and private edifices, and be a good practical geometrician; to be enabled to give that instruction to the operative superintending workmen concerned in each department of the building business, which is required while the fabric is erecting. The architect ought also to be acquainted with all the mechanical arts employed in the construction of an edifice, as well as be enabled to lay down by the most intelligible plans, elevations, and detailed working drawings of the different parts of the building, showing how each of the separate parts should be joined together or carried into execution. The architect must also be so much a master of the component parts of his composition, and the necessary forms and dimensions of each, that, as those of the profession term it, he may be able to dissect and develope the whole design, and from thence estimate from the same, giving the total amount or cost of the building before a single article is prepared, so that the employer may not be misled. This was an ancient and wise practice, "For which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it?"*

* St. Luke, xiv. 28. It was a law among the Romans in the reign of Augustus, that if an architect misled an employer by a false estimate, he was obliged to make up the deficiency from his own private purse. Hence none but those of some considerable fortune were able to follow the profession. (Vitruvius, Hist.) What would many of our young architects of the present day think of this, were they bound by the same law?—(A.)

The great masters of Italy—such as Palladio, Leone, Baptiste, and since them Piranese, —after the revival of the liberal arts, were indefatigable in their researches into the architectural monuments of antiquity, and their discoveries have now been published. It is requisite therefore that we should study from those authors as fountains of knowledge, for it is from them, as well as from the ancient edifices, that we must learn the necessity of a long, clear, and extensive application to the subject, and the impossibility that any man can arrive at a tolerable knowledge, much more the perfection of architecture, without having been previously trained to the arts even from his earliest infancy, and nursed as it were in the cradle of science. As it is now evident that a classical knowledge of the Greek and Roman structures, and a thorough acquaintance with the theory and practice of architecture, are by no means easily and readily acquired, gentlemen following other pursuits will do well to pause before they decide in any summary way by engaging a builder to act in a twofold capacity,* or allowing him to follow his own superficial or heterogeneous ideas; seeing that a noble mansion, chaste in the design, beautiful and harmonious in all its parts, can only be produced by sound judgment and intense application to study, and that by an architect who possesses a fine genius, and follows his profession entirely as a liberal art. But more particularly is an architect required for the manor-house, the country mansion, and the elegant seat, as such edifices always stand detached and surrounded with their local scenery, and are buildings on which great sums of money must necessarily be expended.

Further, let it be borne in mind that the want of chasteness and harmony in such buildings, either in the external part of the fronts, or taken as a whole mass, when observed by a man of taste, will ever detract from, or be a disgrace to, the judgment of the owner. And as to the interior, whether by an improper mixture of styles or distribution of the rooms, or their disproportion, or the want of conveniences, and bad principle of construction, those are often serious in their nature, and not unfrequently expensive in their results where necessary alterations must follow in consequence. Therefore in the end it will always prove a saving rather than an expense to employ a professed and experienced architect. But we again repeat, that he must possess taste as well as practical judgment, or his buildings will prove but monuments of disgrace and deformity, instead of chaste, beautiful, and attractive objects.

Lastly, gentlemen will always be sure to have a more splendid and elegant rural residence, and the expense in building will be greatly diminished by superior science, in proportioning the materials to their exact ratio; and this saving is at all times to be kept in view, though contrary to the expression of the old adage, "A little stronger than strong enough." Nevertheless, a maxim among the profession must also be borne in mind, that it is better for the architect to play with the purse of his employer than with his own reputation, by too far lessening the substances of the materials; however, on the other hand, we may observe, that a house apparently very solid, is often weakened by the very load of unnecessary and misplaced materials, for beyond a certain ratio, the very materials are a load to themselves.

* It must not be understood that any reflection is here intended to be cast on the builders as a body; those mechanics are most useful and respectable, and will act with the greatest integrity when engaged under an architect.—(B.)

ON THE PRINCIPLES OF DESIGNING PUBLIC BUILDINGS.

"The ancients must furnish examples and the components parts; modern art is to select, modify, arrange, and combine."
Essay on Design.

The splendour of a city in its municipal or public edifices, consists in their magnitude, greatness of architecture, and classical or appropriate embellishments.* In private dwelling-houses bad taste may pass uncensured, since the proprietor alone is responsible, and at liberty to employ the operative carpenter or mason to form his plans, or indulge his own fancy; but in public buildings the good sense and taste of the community are deeply concerned, as well as their degree of civilization and refinement displayed and estimated. Those edifices by belonging to the public are also open to public criticism, and very justly, as absurdities in their composition might otherwise mislead the student, often being referred to as examples, and looked upon as perfect models of architecture.† Now as to public buildings, from the fact of each of them being appropriated to some particular purpose, so they should differ from each other in the style of their architecture. To do this their character must be definite, appropriate, and well studied, the architecture chaste, and the ornaments bold, varied, and in accordance. Thus whatever enrichments are introduced, they should be identified with the building. Hence the Guildhall must vary in its ornaments from those of the theatre, and the court of justice from the exchange; and again, the ornaments on the principal front should be considered as guides to determine the intended use of the building, all of which depends on a knowledge of history.‡

In public buildings it is reasonable to expect that good taste should always prevail, and that every such edifice should exhibit some characteristic in the design and architecture, as well as proportion to the classic models of the ancients; but by a strange fatality, a few years since some of the architects in the metropolis, like those of the Goths, appear to have conceived an antipathy to imitating them, and in order to avoid every appearance of it, had studiously deviated into the fanciful, whimsical, and absurd.§ How far the moderns have profited by abandoning the fashions of antiquity in their dress and customs, we shall not stop to inquire; but we may venture to affirm with regard to architecture, that in proportion as we deviate from the principles of the ancients, and abandon the imitation of their models, we depart in the same ratio from the path that

* "To the sublime in building, greatness of dimensions seems requisite, for on a few parts, and those small, the imagination cannot rise to any idea of infinity. No greatness in the manner can effectually compensate for the want of proper dimensions. There is no danger of drawing men into extravagance of design by this rule; it carries its own caution along with it; because too great a length in buildings destroys the purpose of greatness which it was intended to promote. The perspective will lessen it in height as it gains in length, and will bring it at last to a point, turning the whole figure into a sort of triangle, the poorest in its effect of almost any figure that can be represented to the eye."—(Burke on the Sublime and Beautiful.)

† All public edifices should be so well constructed as to endure for ages, and should serve as ornaments to the town where they are erected, for they convey either a public honour or disgrace on the citizens, according to the taste displayed in their architecture, and wherever built cannot fail to be objects of attraction to the inhabitants as well as to the visitor; they also, if chastely designed, generally lead to further improvements in the city or town.—(Architectus.)

‡ I observed while at Paris, that the French have attended to this rule, so that the foreigner has no occasion to ask the bystander what building it is which presents itself before him.—(R. B.)

§ We have in England at this time many such ridiculous buildings, decorated with toys like a twelfth-cake, raised at an enormous expense, and designed as if for eternal monuments of the opulence and of the bad taste of the British nation. But it appears as if man was doomed in departing from one absurdity to fall into another, for in some of our provincial cities we have lately seen erected the most barbarous and debased Italian structures, composed of prison-like block rusticated columns, and rusticated angles *ad infinitum*. Now instead of allowing architects to pursue novelty at the expense of good taste, and seek for reputation by adopting pretended improvements of their own; if directors, when concerned in the erection of public buildings, were to oblige the architect to adhere strictly to the ancients, and adopt their forms, proportions, and details, England would then soon become adorned with the noblest edifices of Greece and Rome.—(A.)

leads to perfection; and that every attempt to innovate, has always terminated with disgrace to the architect and to the country; for though their incongruous designs may satisfy the vulgar and tasteless, yet the sight of such buildings will always be offensive to the man of correct judgment and classical attainments.

In the composition of all municipal or public buildings, the front elevation, like the human figure, should be uniform, and have its principal entrance in the centre of the front. The flanks or sides must vary in design from that of the front elevation, but be uniform and correspondent with each other; while the postern elevation must again differ from the front and sides.*

In public buildings of great extent, there should always be a principal and important mass in the centre, with subordinate ones at or near the ends, and these projections at each end of the front may break forward; and in the centre of the front a portico may be erected, of four, six, or eight columns, crowned with a triangular pediment decorated with sculpture.† The end projections may have pilasters of a correspondent order with that of the portico; but it must be remembered, as we have already stated, that the order and architecture should always be in character with the building itself, some being for solemn purposes, others for gay ones. The Corinthian order, for example, being rich in ornament, is in consequence most appropriate for a palace. The Ionic, being playful, is suitable to a theatre; while the Doric is grave and sublime, and consequently most adapted for sacred edifices. The Tuscan is more applicable to market-places. But to acquire a true taste for composing or designing public buildings, and decorating the same appropriately, it is necessary to be well acquainted not only with classical architecture, but also with the heathen mythology,‡ and to have previously inspected the antique monuments of Greece and Rome: if not the real buildings themselves, then by good prints, and to have compared them with the more modern works of the Italian architects, as Michael Angelo, Bramante, Baptiste, Palladio, as well as the French artists Desgodetz, Piranese, and Mansard—the latter in his palace at Versailles, erected in the reign of Louis XIV., and to have remarked which of these buildings are most agreeable to the rules of art, or that edifice which most affects our passions in the review; for the mighty masses and harmonious proportions of architecture always fill the mind with awe or delight as they recall the majesty or grace of the material world.§ Hence the works of those great masters are well worthy of our choice, to which we

* "In architecture," says Sir Henry Wotton, "there may seem to be opposite affectations, uniformitie, and varietie, which yet may very well suffer a good reconcilement, as we may see in the great pattern of nature, for surely there can be no structure more uniform than our bodies in the whole figuration, each side agreeing with the other both in the number, in the qualities, and in the manner of the parts; and yet some are round, as the arms; some flat, as the hands; some prominent and some more retired; so as upon the matter we see that diversitie doth not destroy uniformitie, and that the limbs of a noble fabric may be correspondent enough though they be various, provided always that we do not run into certain extravagant inventions. We ought likewise to avoid enormous heights of four, six, or more stories, as well as irregular forms; and the contrary fault of low distended fronts is as unseemly; or again, when the face of the building is narrow and the flank deep, to all which extremes some particular nations are subject; and so much for the general figuration or aspect of the building."—(Sir Henry Wotton's Elements of Architecture, published A.D. 1624.)

† Many of our young architects suppose that the grandeur of an edifice depends entirely on a portico, and therefore introduce one upon all occasions, as if a building which was required to be noble could not be designed without it. I would refer such to Henry Salt's Views made in India to illustrate the travels of Lord Valentia, where the sublimity of the public edifices will be seen chiefly to arise from the magnitude and masses, more than from their columnar architecture.—(A.)

‡ Sculpture and painting (the joint efforts of both may be required on the exterior and in the interior of a public building) propose to themselves the imitation not only of the forms of nature, but the character and passions of the human soul. In these sublime arts the dexterity of the hand is of little avail, unless it is animated by fancy, and guided by the most correct taste and observation.—(Gibbon.)

§ As examples of the powers of the mind, and the readiness with which the principles of the ancient art of the Greeks and Romans have been made to apply to other and widely different purposes, the works of the Italian architects are eminently encouraging. In the noble and splendid buildings of Italy they may be unquestionably traced, and each is amenable to the test of similar criticism, as all afford proper subjects for the contemplation of the student. In its unques-

must add the works of the Athenian Stuart and Rivet,* and Messrs. Wilkins and Cockerell our countrymen, whose publications have been the constant storehouse of our lovers of Grecian architecture—a fact of which we are convinced on the inspection of the different edifices they have erected. Thus, witness

> "Our towns and cities of illustrious name,
> Their costly labour and stupendous frame."—DRYDEN.

In attending to the first principles of designing, the judicious architect has many difficulties to meet and combat, and many obstacles to encounter and overcome in the art of composition, and even in the contour, the massing, and proportioning the different parts so essential in the larger buildings; and this is not all, there is the assemblage, and the application of those proportions, that are also required to be justly appropriated to the intended fabric.† The orders of architecture are only the dress or embellishments of a building, though they must appear to form an integral part; the composition and distribution of the masses, and the proportioning of the component parts, being the principal, as well as applying those proportions to the proper objects, which is the most noble, the most extensive, and difficult branch of the art of composition. The portico, and the appropriateness of the orders with the embellishments, require skill in their disposition, situation, and arrangements, and a good genius to dispose them, so that they may be said to have neither meagreness nor redundancy. Neither should any part of a building be over-dressed, or left anywhere wholly bare.‡ The first betrays a lavishness of fancy, the latter a meanness of taste; which lavishness may be compared to the headdress of a fine lady crowded and overcharged with lace, ornamental flowers, and feathers.

An elegant writer§ speaking of public buildings, says such edifices require greatness of architecture, which greatness, he considers, relates to the body and bulk of the structure, or to the manner in which it is built. Now if we are to consider greatness of manner in architecture which has much force upon the imagination, we shall find that a small building where that appears, gives to the mind nobler ideas than one of twenty times the bulk where the manner is ordinary or little. Thus, perhaps, a man would have been more astonished with the majestic air that appeared in one of Lysippus's statues of Alexander, though no bigger than the life, than he might have been with mount Athos, had it been cut into the figure of that hero, according to the proposal of Phidias, with a river in one hand and a city in the other. In confirmation of the above hypothesis, says a French writer,‖ I have observed a thing which in my opinion is really wonderful, and demands our serious

tionable unity will be found the source of dignity in the palace, notwithstanding the variety of its form. Its continued terraces provide a secure and extended base, from which, like the columns of the Greek or Roman temples, its arcades, pillars, and towers, are bound together by its architrave and cornices, above which the sky is met in parts of less magnitude, but equally enriching, formed by its domes, turrets, balustrades, vases, and figures, altogether combined in the greatness of relative proportions of simplicity and ornament, rendered the more striking by its well-disposed light and shadow, and the brilliancy of the material of which the edifice is constructed.

Thus in works that could not have been accomplished by mere imitation, we recognise the principle of ancient art in their designs even at a distance, in which form and contour are only discernible. These works are not copies; they merit the reputation of originality; for although in fact they are the offspring of the same art and governed by similar laws of design, the Grecian temple and the Italian palace are as unlike to each other as are the Greek and Roman temples themselves to their Egyptian and Assyrian precursors, and from which their origin may probably be traced, and even beyond them to the rude excavations of yet earlier times.—(Papworth's Essay.)

* Stuart's Athens, a work of surprising exactness, presents to the eye in vast groups a collection of the noblest specimens of Grecian art and of Attic taste now existing.—(A.)

† Many of our architects of the second and third order have wrong conceptions; they return out of Greece and Italy with their heads full of ancient temples, forgetting that those models of symmetry and grace were never intended for the assembling of multitudes, and that when once their forms and proportions are violated, decorations become as preposterous as a court-dress upon the back of a clown.—(Dr. Whitaker.)

‡ See Pope's Essay on Taste.

§ Addison on the Works of Imagination.

‖ Monsieur Freart, in his Parallel of Ancient Architecture.

inquiries whence it proceeds, that, in the same quantity of superficies, one manner really seems great and magnificent, while the other is poor and trifling; the reason appears uncommon. I say then, that to introduce into the architecture of public buildings this grandeur of manner, we ought so to proceed that the divisions of the principal members of the entablature may consist of but few parts, that they may be all great and of a bold and ample rilievo, so that the eye may behold nothing little and mean, and that the imagination may be more vigorously touched and affected with the work. For example, in an entablature, if the crown moulding and planceer of the cornice, the modillions and dentils, make a noble show by their graceful adjustment; and if we see none of that ordinary confusion which is the result of little cavities and shadows, produced by small quarter rounds, little astragals, trivial beads, and many other insignificant intermingled members sometimes introduced, which produce no effect in great and massy works, but very unprofitably take up space to the prejudice of the principal members, it is not certain that this manner will appear solemn and great; on the contrary, it will have a poor and mean effect where there is a redundancy of those little members, which divide and scatter the angles of the sight into such a multitude of rays, so pressed together that the whole will appear but a mass of confusion.

As simplicity is greatness, so the whole mouldings in an entablature should not be enriched, but some alternately left plain for the eye to repose on; two or more carved mouldings together in a cornice always occasion confusion; and to be great there must be no little parts: simplicity also in other parts of the building must likewise be observed, to contrast with ornament. And there should be but one order and one cornice, and that cornice running all round and unbroken, so that it may appear to bind the building together.* The cornice must also be prominent; the windows not to be too numerous nor too large; and the niches properly placed, where sculptured statues of founders, patrons, heroes, or illusive deities and symbols from the heathen mythology are to be introduced.† And whenever greatness is required, all little angles and broken lines, as well as encumbering, whimsical, and unmeaning ornaments, and twisted and tortured curves, must be avoided. Among all the members or mouldings in architecture, which amount but only to a few, such as the round, the hollow, and the square, there are none that have a greater character or produces a better effect than the concave and the convex;‡ and we find in all ancient and classic architecture, that round columns, cavetto cornices, vaulted roofs, and domes, formed the greatest part of those buildings which were designed for pomp, splendour, and magnificence. The reason some imagine to be, because in these figures we generally see more of the body than in those of other kinds. There are indeed figures of bodies where the eye merely takes in two-thirds of the surface; but as in such buildings the sight must split upon several angles, it does not take in one uniform idea, but several ideas of the same kind. Look upon the outside of a dome, your eye half surrounds it; look upon the inside, and at one glance you have all the prospect of it; the entire concavity falls upon your eye at once, the sight being as the

* A building which has but one order, and where the pillars go up the whole height of the edifice, including the cornice and blocking-course, in the Grecian style, is far grander than the Italian, where there are two tiers of pillars one over the other. And where the entablature is not extended along the sides, but cut off at the returns, the whole edifice appears made up of patchwork.—(A.)

† It appears to have been a principle with the Greek architects in the formation of their temples, that all the chief lines should be horizontal and the subordinate ones vertical, excepting such as partake of a diagonal character, which merit distinct consideration; also that the leading lines should have the effect of undisturbed continuity, whilst the secondary lines should be decidedly and sometimes even abruptly intercepted.—(Papworth's Essay.)

‡ The Greeks used mouldings generated by the ellipsis, the parabola, and the hyperbola; consequently they preserved what the painters term middle tint, and had broad quantities of light relieved by striking depths of shadows and sparkling effects, for which the forms of their mouldings were carefully designed. The Romans invariably composed their mouldings of circles, either simple or compound, in equal portions from equal radii, thus producing similar quantities of middle tint, light and shadow, but which is not so imposing in effect as that of the Greeks.—(N.)

centre that collects and gathers into the lines of the whole circumference. In a square pillar, the sight often takes in but a fourth part of the surface, and in a square that is concave, the eye must move up and down to the different sides before it is master of the inward surface.

But on reverting to the practice of the ancients—"inventas qui excoluere per artes"—the young architect, let it be remembered, should travel, and, when studying any celebrated classic public edifice with advantage, he should at the same time measure the component parts, and well consider the general design and purpose of the building, and then examine freely how far, according to his own judgment, the purpose is answered in this structure. He will thus establish in himself a custom of judging by the parts as well as the whole. And, considered in this light, the student will also improve his knowledge and taste by such contemplation and study, for he will find how greatly the designer thought, and how judiciously he has done many things, which, but for such examination, would have passed in his mind unnoticed, or at least not understood.* Possibly when he has thus made himself master of the designer's ideas he will see wherein it might have been improved. Now that he understands the work he will have a right to judge; and what would have been presumption in one who knew not the science, or another who had not well considered the building, will be in him the candid and free use of that knowledge he has attained in examining the art. Therefore never let the student in architecture check those sallies of his fancy; but, with due endeavour, and a modest sense of his own rank in the science compared with him whose work he has studied, indulge in his remarks freely, yet still considering himself, nevertheless, as a "dwarf placed upon a giant's shoulders,"—as seeing, not with his own eyes singly, but with a borrowed light of some great master. The young architect will now be at liberty to select from these prototypes, and to combine and accommodate such parts to his own design as he may see fit; but this must be so embodied as not to appear copied, and the whole seemingly his own; while only the component parts and those beyond invention, or "a grace snatched beyond the rules of art," are known to himself to be borrowed; he will have, and deservedly, the credit of novelty, while there is nothing in his design but what may be supported by the remains of antiquity.†

The architect, it must be confessed, labours under a disadvantage not known to the painter, as he can at pleasure remove mountains if any such objects in his composition do not exactly please him: not so with the architect; after his building is commenced he cannot do this so easily, and

* The greatness of the Roman edifices and their beauty alone may well deserve our attention; but they are rendered more interesting by two important circumstances which connect the agreeable history of the art with the more useful history of men and manners of that period. It is reasonable to suppose the greater number as well as the most considerable of these edifices were raised by the emperors, who possessed so unbounded a command both of men and money. The Colosseum, which is of an elliptical form, the major axis being six hundred and twenty feet, the minor axis five hundred and thirteen feet, and occupying a space of nearly six acres; was commenced by Vespasian. Cassiodorus affirms it cost as much as would have been required for the building of a capital city; but many of these works, be it remembered, were erected at private expense, and almost all were intended for public benefit. Augustus lived in a mean habitation, while he expended his large income in the erection of public buildings.—(Gibbon's Fall of the Roman Empire.)

† In designing public buildings some have gone to extremes, like Baromini, a modern Italian architect, by indulging the fond hope of excelling the ancients, deviating from their footsteps, and discovering, as they think, some new beauty in the most absurd forms and proportions unknown to them; thus introducing and varying the outlines, and studying the effect of the most endless and heterogeneous combinations. Unfortunately for the advancement of design in architecture, it is too generally supposed that in every part it is wholly confined and directed by absolute and established rules; that the five orders, as they are called, are precise canons from which it would be heresy to depart; and that the architect has little more to consider than to follow the rules laid down in books, and to copy the ancient portico, (which a skilful builder might equally do,) or by an easy transposition make new designs from them in a way quite as dependent on the fancy as the judgment; when, in fact, his duty is to explore the treasures with which the vestiges of antiquity and the best works abound, viewing them not as documents and patterns merely, but as invaluable manifestations of mind, in which may be read the very thoughts of the authors, and where may be found the reasoning upon which they acted; thence producing principles and rules for controlling and directing those exuberances of fancy with which he who reasonably hopes to become a great architect should be gifted.—(Essay on a Design.)

when once erected, however some parts may offend his eye, so they must remain, to his utter mortification and disgrace; and, although he may have had a model of the whole edifice before he commenced operations, yet many parts may deceive him, if he has not attended to the laws of optics and perspective, as many of those parts which were seen in the model and added to its beauty, may be entirely lost or disappear from the eye when erected, causing the structure to look distorted and unsightly.* Here is the perplexity; and the only assurance the architect can obtain with certainty as to the appearance of his edifice when finished, is by making a perspective drawing of the building from the most conspicuous point of view before he commences his erection.

Of all the noble arts, the study of architecture is perhaps one of the most delightful, where there is an innate genius to conceive, and a mind well stored with images of splendid buildings; for by changing and varying the modes, there will always spring up new ideas, new scenes for the imagination to work upon. The fancy of the designer may thus invariably be extended, as the different styles of architecture will constantly furnish him with something of an amusement, and gratify the eye as well as the understanding of an inventive genius.† All the pleasure the man of fine genius takes in his pursuit after knowledge of this kind is inexpressible; and in any other laudable pursuit it is equally the same. The astronomer stands in his observatory, and soars from one planet to another and from one region to another, till the mind is lost in infinite space. The geographer in his private room travels from one country to another, through various climates, over sea and land, till he encompasses the whole earth in his imagination. The painter in his studio also forms beautiful and picturesque landscapes, lively groups of figures, terrific and craggy precipices, and silent glades, all diverting and diversifying his ideas. The poet, with his "eye in a fine phrenzy rolling," sits in his sylvan bower, and with all the harmony of numbers, imagines to himself beautiful hills and verdant lawns, pleasing vales, meandering rivers, and purling streams gliding through some gloomy dell, with all the wonders of the fairy world. In like manner the architect comprehends and forms in his mind's eye, as if in a vision or dream, his design, with many pleasing structures, beautiful and well proportioned. So Dr. Johnson sat and conceived the idea of his Palace of Rasselas in the Happy Valley, Chaucer his Temple of Fame, and Addison the House of Vanity, seated on the clouds between heaven and earth; Milton his Pandemonium, Ovid his Palace of the Sun, and the author of the Arabian Nights his Palace of Abdallah—and all these formed with a regular and seeming symmetry and just exactness. The sculptor also imagines and ideally views in a block of marble

* In this predicament was situated the late John Nash, Esq., an architect eminent for the grand and the picturesque, who stated to the Committee of the House of Commons, that he had been deceived as to the appearance of the dome on Buckingham Palace when he remodelled that edifice, little expecting that object would look so inelegant as it did, seen rising from the garden front, and peering over the summit of the roof, which to the spectators in the park at a distance appeared like an egg in a cup, and when near like a balloon just rising over the building. Now the laws of optics would have pointed this out to him had it been previously considered, or if Mr. Nash had but applied its rules to the design before the dome had been erected. It has since been removed, but more detracting from than improving the palace. The attic base of the dome should have been raised so as to have been seen, and the dome itself crowned with a lantern. Buildings intended to be noble should always appear to possess magnitude; thus we may observe, that if a public edifice is designed to be erected where there are no accompanying objects, it will appear less than when surrounded with houses or other objects. All bodies when viewed so as to be immediately opposed to space, appear to be less than those seen in connexion with other substances, and hence the grandeur of St. Peter's at Rome, where the whole cycloid of the dome seems surrounded by the clouds.—(A.)

† "Invention," says Sir Joshua Reynolds, "at least what is generally so called, is chiefly the child of imitation; for it is in vain to endeavour to invent without materials on which the mind may work, and from which invention must originate. Nothing can come of nothing." (Discourse VI.) "A fine invention," says Sir E. Lytton Bulwer, "is nothing more than a fine deviation, or an enlargement from a fine model; imitation if noble and general, ensures the best hope of originality." (The Disowned, chap. xxv.) Dr. Johnson says, "The genius to invent is a quality without which the judgment is cold, and knowledge inert; it is that energy which collects, combines, amplifies, and animates."—(Rambler.)

a beautiful statue, which only requires the care and skill of his nice hand to take away the gross particles of stone which enclose it, whereby others may view it with equal pleasure as himself. In this way and manner the architect must study, conceive, imagine, and figure to himself in his mind's eye, and then commit his ideas to paper by lines, shades, and colours.*

No style of art, it must be remembered, is held in estimation in which the character is not correspondent with a great or worthy object, and which does not require the operation of a highly cultivated mind, both as relates to the theory and the employment of the principles of science. That the useful and agreeable form the groundwork upon which the early architects engrafted that which has become acknowledged beauty is very evident. The Greeks became solicitous to give importance to their works, but not by means of magnitude alone, which they had seen in Egypt, created by heaping stone upon stone or piling mass upon mass, to constitute supposed grandeur, such as may be seen in England in that ponderous and heterogeneous structure the Mansion-house in London, which brings to our mind the pile reared by the giants or furies of the earth when they waged war against Jove the celestial god.

"Thrice their strained strength had Ossa on Pelion laid,
And heaved on Ossa all the Olympian shade:
But Jove indignant as the structure grew,
Thrice thund'ring thrice the mountain mass o'erthrew."

VIRGIL, *Georgic* I.

In conclusion, as to the situation of our public buildings, many of them in cities are unfortunately seen only as façades, their flanks or sides being concealed by adjoining houses, and not being sufficiently detached; therefore they fail to interest by this rigid economy, which if placed in open situations, would strike the beholder with astonishment.† A spacious square, or a radiating panoptican site formed by the junction of four or six streets, as the public buildings are situated at St. Petersburg, would give room for elegance and design; here the public edifices have been so placed as to be seen from different streets, converging towards them like the arms of a windmill, which places are called perspectives, because from all points of view they afford a prospect of the public edifice.‡ Where a proper distance is wanting to view a public building, such objects frequently appear a distorted figure, a sort of anamorphosis.§ If you desire to see the proportion of a public statue elevated on a pedestal, you would surely go so far distant as to take the whole of the figure in the eye at one *coup d'œil* or glance of sight. Buildings require the same optical distance, and their respective mouldings to be optically inclined towards the eye, both those which are placed above and below the horizon; but as this requires some stated angle, it will be necessary perhaps to lay the same before the young architect. Where then the distance can be obtained, it should be at

* He that has observed most, says Dr. Johnson, it is reasonable to expect knows most; and those, adds Horace Walpole, who have been so situated as to have had noble and elegant models before them, are best qualified for designing public buildings. For it must be from the storehouse of the mind that the materials are to be drawn and the design formed. And the materials must be collected from others, as Sir Joshua Reynolds has shown, when he tells us that invention, strictly speaking, is nothing more than a new combination of those objects which have been previously gathered and deposited in the memory. Yet the composition of the building itself must be the architect's own arrangement. We do not mean that servile counterfeiting of an original, so much the practice of some of our modern third-rate architects, who copy the very lines and profiles of the object, when they ought only to compose in the spirit of the original.—(A.)

† Goldsmiths' Hall, a noble edifice in the Roman-Italian style, lately designed and erected in London, at the back of the new Post-Office, by Mr. Hardwicke, a decidedly popular architect, ought to have had a better situation.—(B.)

‡ Capt. Jones's Journey to St. Petersburg.

§ The external parts of a building at a proper distance are circumscribed by the retina of the eye: the internal parts terminate by rays of light which strike on the retina, and circumscribe them within the focus or point of sight by a reverberation of rays, so that all external objects are more distinctly and more intelligibly viewed and considered by having a proper distance assigned.—(F.)

such an angle that the whole building may be seen without turning the eye in the head, first to look at one part and then at another. This required angular view may be found by making the point of distance from the centre of the building equal to half the length and half the height of the building added together. For example, supposing the front to be one hundred feet in length and the height forty feet, now half of each of those dimensions added together will make seventy feet, which measure will be found to be a proper distance for the point of sight, or place of the spectator from whence to view the whole building distinctly and with advantage: a greater distance may be taken *ad libitum*.

ON THE PRINCIPLES OF DESIGNING PRIVATE DWELLING-HOUSES.

" No art without a genius will avail,
And parts without the help of art will fail."—OLDHAM.

Rural architecture is not only one of the most pleasing of the useful sciences, which has been termed the " art of necessity,"* but it may be esteemed the most extensive in fancy and design, requiring great taste and good judgment to compose the parts of which it consists, either in respect to a regular systematic uniformity or a picturesque composition, and to harmonize and combine the different masses with the surrounding scenery or local objects on the spot.† To be enabled to design rural residences with true taste and judgment, the architect is required to have previously inspected many fine mansions and country villas, both at home and in various countries; and to have made useful as well as critical remarks on the combination and appearance of each in connection with their appropriate scenery. He must also have a mind well stored, and possess a fertile imagination as well as a playful fancy, to enable him to diversify the effect by light, shadow, and middle tint, and to preserve the analogy of his design so as to give pleasure to the eye, either in its natural simplicity, or when it is more elegantly decked with ornaments.‡

Variety in the *tout ensemble* of a rural residence, when built on a choice and well-selected situa-

* Architecture has been termed the art of necessity, in contradistinction to sculpture and painting, which have been distinguished as the offspring of elegance and luxury.—(Dr. Memes.)

† A house that is composed of regular parts on each side of a centre, is said to be uniform and systematically designed. When a house is composed of dissimilar parts both in mass and detail, as if it were the work of chance and not design, then it is said to be picturesque. Symmetry is an essential part of beauty, though not of the picturesque, for that object can rarely excite agreeable sensations which is formed of dissimilar parts on each side of its centre. It is necessary however to observe that this symmetry is only required where the whole house is seen from one point of view; it would even be improper in an architect to bind himself to an uniformity of design in all the fronts of a country-house when these fronts are to be seen successively; such a repetition would be wearisome, and the spectator would lose that source of pleasurable sensation which arises from the variety exhibited in the different fronts or the exterior. It is not sufficient that the parts of a mansion should be symmetrically disposed; there should be some one part which forms the principal object, and to which all the others should be subordinate; this constitutes what is called unity in an edifice, for it reduces all the parts under one system, and makes that an entire body which otherwise might be taken for a collection of independent members.—(E.)

‡ Superior ideas may be obtained by studying those sublime and beautiful edifices seen in prints from pictures of the great painters, particularly Nicolo Poussin, the French Raphael. This talented man formed his style at Rome, having studied in that seat of learning for more than twenty years, where he became acquainted with all the antique buildings and villas of the Romans, as well as conversant with suburban scenery. The characteristics of his works are classical grandeur, his historical figures, his flowing luxuriant and ornamental trees, and his detached and perfect suburban buildings, placed along the sides of the mountains and on the summits of the Pincine Hills; and others again near the margin of the river Tiber have all an air of majesty. In the rich choice of his subjects and manner of representing its incidents, Poussin has few equals and no rivals. In his pictures too there is always a most charming harmony of thought; the mountain scenery intermingled with temples rising up, and some crowning the very summits; and likewise villas enamelling the undulating slopes, embosomed in suitable scenery, and the long horizontal parapeted bridges striding over the wide river, accompanied with majestic and lofty flowing trees on the margin of the meandering streams; groups of figures dancing or in conversation under the wide-spreading shady branches, and sylvan statues placed on pedestals, coupled with his masterly style of handling, have all a grandeur and antique air transporting the imagination into an ideal world. Hence of all those who have made the attempt, Poussin has best succeeded in classical composition and in allegory.—(B.)

tion, will always please and delight the eye; but here beauty—or what we may call harmonic proportion in the masses and the members—may at times, if essentially required, in a picturesque edifice, be by a skilful hand sometimes varied and modified, or accommodated to the more important object, that of convenience, particularly where the building is to be in the Tudor style*—that is, where the interior of the house is a chief object; but the form must not be so violated as to be observed by the vulgar eye. With these two considerations, that of the exterior and interior combined, the architect is to endeavour to be not only well acquainted, but to make himself master of them, before he attempts to enter into the field of design. When a knowledge of this frequent perplexity is obtained, all the greater difficulties in architecture vanish; and the student will then be able to form, arrange, adjust, and delineate his ideas with satisfaction—even from the simple cottage to the gorgeous ducal palace, so as to render either worthy of the noblest encouragement and imitation.†

The contractedness of a site, or of the house, will sometimes prevent the architect from displaying his taste in designing; but it is to be observed, that even a small house equally requires his judgment to compose, so as to dispose of the parts in the most advantageous manner. For, although elegance itself may frequently be seen in a noble mansion, yet the same may be obtained in a building in miniature, well conceived and adjusted by a skilful hand, when perhaps on the same spot, if designed by a less efficient person, the house would appear an object of absurdity—ill-proportioned in the masses on the outside, and inconvenient in the distribution of the apartments within—of which we have many examples, even where expense was of no consideration. Strange as it may appear, it is no less a fact, that true taste is generally seen in the lesser rural residences; for the pride of an architect is here, with the most limited means, to produce the greatest possible beauty of form, combined with utility, as well as suitability to the destined purpose. Such buildings as these will at all times charm and attract the attention as well as call forth approbation.‡

In designing a country villa we should always keep in view the three following principal objects, namely, convenience, strength, and beauty: when these are united in a mansion, that house may be said to be perfect. Convenience consists in the most judicious distribution and division of the apartments, and in their comfort and utility, as best suited to the purpose for which the building is destined. Strength depends on an efficient site, or one that will support the superstructure; secondly, the formation of a proper foundation; thirdly, in the geometrical construction of the various parts of the edifice; and lastly, on the choice and goodness of the materials; all of which require a practical acquaintance with mathematics, geology, botany, and physical science. Strength, when combined with magnitude, gives sublimity to the third important quality. Beauty consists, first, in the simplicity of all details, and the symmetrical proportions in all the forms of the

* The irregularity of outline which the Tudor style admits, and indeed almost requires, consisting of gables, dormers, and chimney shafts, allows of any arrangement of the apartments which comfort or fancy may suggest, and accommodates itself to all the varied wants of modern life, from the palace of Henry VII. to that of the Elizabethan cottage.—(Quarterly Review for August 1831.)

† It has been the fate of many architects, no doubt, in a circumstance of this kind, to have been counteracted in their designs by ignorant and tasteless employers, and not unfrequently obliged to sacrifice their own sublimer conceptions to the bad taste, the prejudice, or the obstinacy of contemporaries, by which their design has been spoiled and disfigured, so as to exhibit the above derangements. At times, nevertheless, it is the fault of the vacillating architect in too easily giving way, or suffering his judgment to be biassed by his employer, without at once pointing out in a clear and decided manner the injury that must be necessarily incurred.—(B.)

‡ Chiswick House, near Richmond, is a beautiful Palladian suburban villa belonging to the Duke of Devonshire, though Lord Hervey sarcastically said, that "it was too small to inhabit, and too large to hang to a man's watch." The entrance is noble and imposing, the parts bold and majestic, but the interior is too much taken up by a large octagonal vestibule in the centre, ascending even to the very dome, by which the rooms around it are rendered mere closets. It is a design from Palladio by Lord Burlington, who was a great architect in his day. The grounds of this little villa are well laid out, and are in the true Italian style.—(B.)

building, whether relating to its internal apartments or the general appearance of the exterior; secondly, in the uniform distribution of all subordinate members; and lastly, in the judicious application of ornaments; the whole of which depends on a correctness of taste, founded on the knowledge of general history and the fine arts.

Ornaments chiefly relate to the interior, yet on the exterior they are by no means objectionable; but they must be regulated by judgment; and the perfection consists in observing a due medium between the extreme of simplicity, and that confusion and redundancy of parts which have neither use nor meaning: such only should be introduced as are consistent, and by no means either too large or too little, too meagre or too luxuriant,* not applied to any part unnecessarily, but well relieved, and useful for the end for which they are introduced. All parts should be in keeping, or within harmonic rules, for it is only that just proportion and beauty, which are the chief characteristics, that can affect the eye of the judicious so as to please. It is this also that proclaims the true taste of the designer.

For an architect to design a country seat or suburban villa that will at all times attract attention, it is required he should have a good taste as well as a good judgment† and inventive powers, which implies a general perception of the whole design, the application of the several parts, and such as are the most beautiful, fitting, and appropriate. In order to accomplish this, the architect must possess a great knowledge of the various forms in architecture, and be enabled to bring them to his aid, as well as to diversify and have the art of applying and harmonizing those parts into a pleasing whole, like forming a picture. However simple a residence may be intended, and admitting but of few breaks, it nevertheless admits of beauty as to form and proportion of parts; in fact, beauty is confined to small objects, for we never apply beauty to anything that is large; for example, we say a large horse is a noble animal, but we do not say this of the pony, we say that is a beautiful little animal. The same applies to an edifice; we say that is a noble mansion, and this a pretty little cottage. When an architect is designing a dwelling-house, therefore, it does not depend upon or require a profusion of ornaments to constitute it a beautiful building, but often the very reverse; for simplicity and taste, which are so difficult and the last to obtain, are closely allied; and the most tasteless designs are generally the most expensive, from the great quantity and heavy mass of materials which abound. In others, again, a redundancy of angles, by which some houses, in the architect's phrase, are entirely cut up, being crowded with inappropriate or unmeaning ornaments, is a sure sign of a low imagination. Let the architect always bear in mind, that whatever is ornamental should be useful, for

"'T is use alone, that sanctifies expense."

There is, no doubt, a greater difficulty in designing a small house than a large one, and a picturesque residence more than one that is uniform, I mean where parts answer to parts.‡ In a house on a small scale, the parts being few, the mind cannot rise to any great or noble idea, nor produce such

* On the exterior of a house, if the ornaments are too large, they will reduce the size of the building in appearance; if too small, they will look petite and meagre. It is like colour in a picture, where that part which is deeply tinted will advance, while the part which is lightly touched will retire.—(A.)

† Taste when employed, though with very little expense, will always produce something pleasing, while the utmost efforts of the latter unaided by the former are ineffectual. Every touch in the hand of the man of taste has so far its effect. It is precisely the same in works of art and of nature as in forming a design for a country seat. To illustrate our above position, set two artists at work: give one of them a pencil and a scrap of paper—every touch he makes perhaps deserves to be treasured up in a cabinet; give the other the costliest materials—all is waste of time, of labour, and expense; add colours, they only make its deformities more glaring.—(Gilpin on Picturesque Beauty.)

‡ Giving effect to the principal structure, and diminishing the altitude of those of less importance, with projections beyond the straight line on the plan, produce a picturesque appearance.—(H.)

a variation as in the larger edifices. In these small dwelling-houses, therefore, the architect must trust to their good proportion in every part, and their suitableness to the surrounding scenery, with which they should at all times harmonise, and which scenery ought to suggest the design in detail as well as in outline. In this instance an architect should have a knowledge of landscape-painting as well as landscape-gardening, to feel, as the artists express it, the subject. He also requires a good taste for the composition of rural scenery and dressed art, as well as a fine feeling for the arts in general, operating on his mind when he sits down to design a residence of the rural kind, without which he will never succeed. It must also be kept in view, that in designing a manor-house in the Roman style, grandeur of architecture should be studied; in the Grecian villa, chasteness and sublimity; in the Italian casino, beauty and ornament; and in the Tudor residence, picturesqueness. The rustic cottage, or cottage *ornée*, should also be picturesque in the outline, with dormer windows rising into the roof, and the roof itself hiped, or inclined inwards at the ends, and likewise to have rustic awnings to the south front of the house, which give the effect of retirement, and to be partially covered or concealed with ivy, woodbine, and clematis.

Climate should always point out and direct the architect as to his design, arrangements, and assembling of the parts of his architectural edifice, according to the latitude of the country wherein it is to be erected; and his buildings should always be contrived to admit or exclude the sun *ad libitum*, to give shelter from the nipping cold, or to be secure against intense heat from the scorching rays of the sun, and to yield shade without immediate reference to either extreme. All these, however, do not affect the internal arrangement and harmonious proportions of the constituent parts. Climate is therefore only modifying, not creative. The two preceding causes may suggest composition, but hardly design, for, with the exception of the pointed and flat roof, according to the humidity or dryness of the atmosphere, and the adoption of the angular pediment surmounting the horizontal lines of the entablature, little essential form or order has been added, or materially influenced by climate. However this cause produced by climate has given rise to and permitted many picturesque combinations.* Those who are ignorant of the practical part, or the establishments of large families, are certainly not capable of designing buildings of any magnitude with propriety; and many such there undoubtedly are at the present day, who make a copy from some architectural book, without studying the principles or the appropriateness of such a design for the spot on which the house is to be erected. This is a species of servility which ought not to be countenanced by an employer, when in reality the very site on which the house was intended to be built, should have suggested the design to the mind of the architect, and afforded the proper ideas for the composition of the structure, whether uniform or picturesque. Now surely what the poet applied to a noble votary of the muses in his day, might with much truth and a little variation, be applied to such architectural pretenders :†

> " ..... All can't invent that imitate,
> No more than those who clothe us can create."—Pope's *Letters*.

* It is to be remembered that climate and material must always operate upon and direct the design of the architect, which has been observed in all ages and parts of the world. Where the country is cold, we find the houses to have been built diminutive, and the rooms and the apertures few and small. On the contrary, where the climate is hot and sultry, the houses have been built large, the rooms spacious and lofty and with more apertures, and those of an enlarged size. As to the materials, they have also had their share in influencing the formation of the edifices; thus we have observed in Norway, where wood is in great abundance, and where stone could not be found near the spot or is expensive to work, there the log or timber-framed house has arisen on a rubble-base foundation. (Laing's Norway, p. 29.) But where neither wood nor stone was to be had in sufficient quantities, then the cob or clay-wall supplied its place, as in Chaldea. (See Job, iv. 19.) Where brick-earth was to be obtained on the spot, as in Egypt, bricks were made and substituted; and where stone abounded, as in Greece, that material was more generally adopted.—(A.)

† It is not sufficient that the architectural student should be skilled in superadding the *beau idéal* to suitableness, and to

In composing a rural residence, the various opening and distant views, with the close adjacent parts of the scenery around the site on which the house is to be erected, are the first in importance, and must be well considered, before the architect determines either on what style of architecture should be adopted, or begins to compose his design; and that design, if extensive, should, like a picture, have some parts prominent as a foreground, others falling back as a middle group, and the third more retired as a background; this will produce shadow and give effect to the lights. Some parts of the house will probably require to project, or be brought forward from a straight line on the plan; while other parts of the house may, on the contrary, recede on that plan, or, in some parts of the elevation be allowed to rise higher than others, by which the contour of the edifice will produce a playful variation, but which outline is to be regulated by the local scenery. Thus, like grouping figures in an historical piece, it will be seen that while some parts require to rise in form of triangles, others, on the contrary, may require to be horizontal and rise less in height, thus producing an harmonious play of outline along the summit against the sky, which is of the greatest importance, and therefore must be well studied and contrasted. And again, some parts will require to be finished with lines in an inclined direction.* Wherever there are open vistas, here projecting parts in the building should be introduced. If there are side views of importance, then polygonal, circular, or bay windows may be adopted with advantage; but when the home scenery approaches nearly to the house and no view can be obtained, then, on the other hand, the building should here recede or pass back.

As to peculiar situations, which we shall now hint at, we may observe, that if the house is to be erected on high ground, then the building should be kept low, and never rise more than two stories high. If on low ground, *vice versâ*, another, but picturesque, story may be added: the summit will thus be diversified. If a midland situation, the house should partake of the two characters: if the ground is level and the scenery tame, the architecture should be of the horizontal kind, consisting chiefly of even and level lines, such as are seen in the Grecian temple. If the house is to be designed for low ground abounding with mounds and clumps of trees, then the perpendicular style should be adopted, with pediments, some of which are to be principal and others secondary, such as that of the Tudor architecture. If rugged and rocky scenery be the accompaniments, the architecture should be of the rustic kind, and consist of diversified, abrupt, and unequal lines, and rustic parts, with an unevenness of summit. If the mansion is to be designed for a high hill, then a resemblance to the feudal castle should be kept in view.†

Now where consistent forms are most apparent in a house, there harmony will undoubtedly preside, whether the design be plain, consisting but of few parts according to the general cast of the country,

the laws of composition, propriety, harmony, light, shadow, and colour; this indeed will make the artist, but he must be well instructed in the sciences, and indefatigable in tracing causes through effects; and, above all, he must be industrious in applying the results of these to his other studies, always remembering that neither an acquaintance with the science of building nor the unassisted qualifications of an artist will constitute him an architect, but that it is the union of both which alone can give a real claim to distinction.—(Essay on Architecture.)

* A continuation of a single idea in a noble edifice produces grandeur, as we see in a colonnade. If carried to too great an extent it destroys grandeur, as we perceive in an avenue where at a distance the parts draw together. Variation of parts produces the picturesque, but too sudden and too frequent a change produces a littleness.—(B.)

† If the architect will observe the harmonies in nature, he may perceive that even the clouds form and adapt themselves to the outline of the scenery, or country over which they pass. Thus in a level country long horizontal streaks of clouds are seen floating near the horizon. Where the country is formed of hillocks and gently undulating ground, the clouds are fleecy, while over mountainous parts the clouds form grand and sublime masses. This the painter is well aware of, and composes his picture accordingly, and such should be the practice of the architect when he designs for a given site.—(B.)

> "To raise the terrace or to sink the grot,
> In all let nature never be forgot."—(Essay on Taste.)

or whether the design be enriched with ornament, and clothed with decorations suitable to luxuriant scenery; if the rules of nature have been applied, all the parts must please both in detail and as a whole. Hence it is observed that situation ought at all times, in a great measure, to suggest, guide, and direct the architect how to compose and apply his masses and his ornaments—thereby blending and making science and art, as it were, to unite together—and to adopt such forms to the spot on which the house is to stand as shall be in accordance. Now there is nothing that shows the complete architect so much as his having every part of his design antecedently in his imagination, and suitably to the intended purpose, before any portion of it is applied to paper and formed into a plan.* It was by this the architects of old made themselves so famous; by this they foresaw and prevented all that would be ungraceful, and therefore admitted into their plans nothing but grace.

We may further observe, that there is always in nature's works one length proportioned to the breadth, that is preferable to another, though the architect may not have defined its limits; so there is in this respect of an elevation of a house, a certain degree of height to be proportioned to the just consideration of length and breadth, which is better than all others, though this has been no more given in the writings of architects than the principles of the former. Yet it is evident by existing works that some have discovered it, (unless we attribute this to individual feeling,) and founded their practice upon this happy rule. In this case it should be sought in the edifices they have erected, in whatever buildings strike the eye as harmonious; or we should examine the cause of this, and the imperfection in our own minds, and not be like those who are pleased with a building they know not why, and displeased with something they do not care for. Of this we may then assure the young architect who will employ himself in the research, as we have before recommended, that though he should not be able to make such a discovery of principle, yet that it results from some law of order: his trouble will not be misapplied, for by admeasuring and considering a great number of elevations of celebrated buildings, he will be able to deduce such favourable rules from them for himself as would not otherwise have occurred but from a long experience.† He will thus accustom and have his mind stored with a variety of good-proportioned elevations; I mean such as are generally approved, or appear excellent and pleasing. By studying the advantages and disadvantages of these severally, and improving upon one by what is better in another, and then forming the elevation upon the parts as well as the general extent, he will very probably at length be able to establish that rule he could nowhere before find, and qualify himself for designing. Besides, unless we make ourselves acquainted with the genuine proportions and first principles of the ancients, how little are we competent to form a just estimate of those matchless edifices erected by them during the most flourishing epochs of their history, and which should constitute the main object of the architect's

* When an architect sits down to design the exterior of a building where it is to be seen detached, as in the country, he should always have the perspective appearance of it in his mind's eye, and not merely the front elevation, or the cornices will not unite, and the house when built will appear to have been made up of patches; such houses are frequently to be met with even designed by professing architects.—(B.)

The man of true taste makes not a single stroke till the general design is arranged in his mind, with which, in some part or other, every effort coincides. An artist may work at a picture in this part or the other, if his design and composition are fixed, and every effort will be gradually growing into a whole; whereas he who works without taste or judgment seldom has any idea of a complete building. He tacks one part to another as his misguided fancy suggests, or if he has any plan, it is something as unnatural as the parts which compose it are absurd, and the wider the scale of the building and the deeper the pockets of the employer, the wider will the deformity spread.—(Gilpin on Composition.)

† Whatever buildings generally please should be drawn, measured, and reduced to a system of rule. It is by this method the statuary proceeds with his deities, forming them by combinations of members from the human figure. Further, let it be remembered in reference to this subject, that Homer first wrote the Iliad, and that afterwards Aristotle deduced from it the rules for an epic poem.—(A.)

travels into classic countries! Thus he who has seen and knows most, will always possess most powers of diversifying his design.*

In a didactic discourse we cannot too frequently enforce the first principles; thus we say, as to the external elevations of an edifice, that the general and essential principles of beauty result first from the just order, distribution, and proportion of the masses, and then the details.† Secondly, the arrangement and proper size of the apertures and the *tout ensemble*. In this respect, first the height of each mass is one of the principal objects to be considered, for when an edifice is excessive in height it has a preposterous look, and is always disagreeable to the eye; and so again is the reverse: when it is too low, then there is a meanness. Nothing can give grace to the enormously high house, nor can all the art of the architect ever communicate dignity to that which is low. Yet we see, with all this plausible evidence before our senses, houses built in the country, and even on hills, facing and exposed to the blasting east wind, three and four stories high. Now residences in such situations cannot be too severely censured as being inappropriate and ungraceful, exposed to the scorching sun in the summer, and to the brunt of storms in the winter. Against such tasteless country residences well might the poet exclaim,

> "So tall, so stiff, some London house you 'd swear,
> Had changed St. James's for a purer air."—PRICE *on the Picturesque.*

A low and extended front on the other extreme is pitiful, and disgusts us by its distasteful height.‡ Where the impropriety is so great in either of these cases the most inexperienced will distinguish it, and when it is less so the judicious eye will still see it. We are all judges of this disproportion in height, for when we look at two buildings of this kind near each other, it is like looking first at a tall person and then at a short one. The architect must therefore be careful to attend to this rule when forming his design, for it is too late to alter after the building is erected: here the inexperienced may be deceived, as the proportions of a house do not strike the eye so forcibly upon paper as they do in the building itself when erected. In a drawing, the windows and doors sometimes look disproportionably higher and narrower than they do when executed, and in other designs larger; here is therefore the fear of running into extremes. Cornices will also appear less in breadth on the drawing than they will appear when executed, in consequence of the geometrical difference to that of the perspective in which we afterwards see them. But that architect must have a very poor degree of practical and optical knowledge who does not distinguish in a good drawing those excesses of defects that will afterwards disgust him in the reality.

As to composing the plan of a house, devising the rooms, and distributing them in the most convenient and eligible manner, this is of the greatest importance, and requires the architect to be familiar with the internal arrangements of good houses, both in London and in the country, from his own experience, and a perfect knowledge of the wants of a family, from the person of moderate income to the nobleman of princely fortune. When the unreflecting behold our splendid country

* In travelling through foreign lands or any part of our own native country for the first time, curiosity is awakened and our attention called to all external objects with which we are surrounded; but the mind can only be amused and profited by such objects according to the means it possesses of appreciating them; and our observations are always more or less fruitful in proportion to the mass of information with which we are previously prepared. Thus, as to the examination of the architectural monuments of different nations, when the mind is stored with general ideas of art and science, every object urges a spirit of contemplation and inquiry, and leads to a thousand associations and recollections which the architect can bring to his aid when forming his design.—(A.)

† We have often seen preposterous cornices, sinking edifices into littleness which they were intended to adorn.—(A.)

‡ To behold on a considerable eminence the length of the front of a house little and the height considerably disproportioned, would appear as absurd as to see the front of a house in a valley long, and elevated only one story in height.—(A.)

residences, and then turn their eye to cottages, they are apt to exclaim, Things ought not to be thus. But it should be remembered that, "whatever is is right," and that when man has once acquired the necessaries and the comforts of life, he naturally begins to apply his wealth to the cultivation of the arts; thus follows the enlargement and decoration of his houses, both in the country and in the city; and if he possesses a good taste as well as a liberal heart, he spares no expense in the encouragement of those by whose skill he imagines he may render his mansion elegant and splendid. Thus his wealth is circulated, labour promoted, and our beautiful country embellished with elegant and tasteful structures.* Now, as superfluity of ornament is generally the thing to attract the untutored eye, some of our young architects too frequently trick out their inelegant designs to atone for the disproportion of the masses, or crowd and fill the spaces with ornaments to conceal that disproportion which would have been observed. This is even a kind of assuming attempt at elegance, which even some of our greatest architects have not been exempt from, though in other works they have shown a splendid degree of taste and great judgment worthy of all imitation. Examples of the former class are too numerous, and the latter are more envied perhaps than admired, which makes such examples less known by young students in architecture so as to attract their attention. Plain, regular elevations, without dress or decorations, or very sparingly introduced, if justly proportioned, will better please and satisfy the taste of the judicious and more immediately strike the eye than all the gewgaw decoration to ill-proportioned designs. There is a kind of sympathizing pleasure felt in observing all objects of nature, animate or inanimate, because just proportion is observed in all the component parts, and the same should be observed in the details of a rural residence.

Having spoken of that elegance and greatness which delight the eye and affect the mind on beholding the architecture of public buildings, we might here show the pleasure that arises in the imagination from what appears strictly beautiful or picturesque in private dwelling-houses; but as we have already defined those two qualities in a building, and every beholder has naturally either a greater or less taste† of these two perfections, in reference to every rural residence which presents itself to the view, we shall not trouble the young architect with any further reflections upon it. It is sufficient for our purpose to observe, that there is nothing in the whole art of designing which pleases the imagination but as it is sublime, beautiful, or picturesque.‡

* Elizabeth, Countess of Shrewsbury, who built Hardwick, in Derbyshire, in 1570, was said to have been a builder, a buyer and seller of estates, a money-lender, a farmer, and a merchant of lead, coals, and timber. A curious prophecy is mentioned relating to this lady, viz., that whenever she discontinued building she would die: to avert the fulfilment of this prophecy she constantly kept builders employed; but she died during a suspension of her works, caused by a severe frost. —(P.)

† We mean by the word taste, not that of the palate, for what is sweet and sour to one is the same to another; but that faculty, or those faculties of the mind, which are affected with, or which form a judgment of the works of imagination and the elegant arts.—(Burke on Taste.)

‡ As to the colour of a building, it has a great influence in affecting our senses. "You are certainly right," said Sir Joshua Reynolds to the Rev. Mr. Gilpin, in reference to his Essay on Picturesque Beauty, "that variety of tints and forms is picturesque; but it must be remembered, on the other hand, that the reverse of this, uniformity of colour and a long continuation of lines, produces grandeur."—(R.)

When a brick building is relieved by stone dressings and stone cornices, we think it gives a pleasing relief, and acts as light and shade, which are always essential to sublimity. However diversely, says a modern writer, the Greek temples were designed, both in form, ornaments, and proportion, and however judiciously prepared, to acquire force of effect by such borrowed opposition of light and shade, even under the favourable circumstance of the brilliant illumination of the clear atmosphere of Greece, such exquisite white material as the marble in which they were executed was necessary to the perfection of the chiaro-scuro of the composition; for, without inquiry, if whiteness and polish be sources of abstract beauty, it is evident that the Greek architects must have failed to obtain the perfect results after which they were so arduously seeking, if they had been obliged to employ a dark or coarse material. They assuredly considered the bright complexion of the stone as applicable to their intentions, just as the painter does the white colour of his palette, and thence arrange the forms and mouldings to obtain striking and pictorial effects of light, modifications of tint, and depth of shade, which it would have been impossible to acquire with similar effect with such delicate mouldings by a dull material. The

Buildings in cities erected for winter residences, where they are most magnificent, certainly require the knowledge of some particular arrangements, not required or necessary to be known by the rural architect. In the construction of the mansion in the country, the architect is obliged to provide for all things dependent upon agriculture, and for the conveniences and uses of such little commonwealths whose provisions are to be supplied within their own territories, not furnished, perhaps, by markets or neighbours as in cities. The rural architect has many different things to contend with and surmount that are not needful to be known by the architect who is wholly employed on buildings in the city; and few architects, perhaps, have a nice and distinguished judgment for both.*

The necessity of employing an architect, and adopting the architecture of the rural residence, or forming its composition so as to accord with the scenery that is to accompany it, cannot be too much enforced. I shall therefore, in conclusion, give a passage from a celebrated author upon the subject, which is too valuable to be omitted. "Whoever desires his rural buildings," he says, "to be real decorations, whether in the mansion itself or in accordance with the scenery around the house, cannot do without an architect; not indeed a mere builder, but an architect who has taste and judgment, and who has studied landscape-gardening as well as architecture, and who is no less fond of it than of his own profession, and who feels that each different situation requires a different disposition of the several parts; in reality, this consideration points out the use and greatly exalts the character of an architect. It is an easy matter, by means of some slight changes in what has already been done, to make out such a design as may look well upon paper, but to connect with correct design such a combination of parts as will accord not only with the general character of the scenery and the objects around it, but that will look well and imposing from the various combined parts, requires very different and very superior abilities. The difference of expense between good and bad forms is comparatively trifling, the difference in their appearance immense."†

As I have laid down a rule for the best angle of view for public buildings, so I shall here give the best angle for private dwelling-houses in the country, though these buildings are seldom so confined as to require it; but in forming plantations around the house it will be necessary to keep them a sufficient distance, and which must at all times be well observed to allow a good view of the fabric. Now an object whose proportion in magnitude cannot be circumscribed by the eye at one view, the whole of that object cannot be comprehended in the idea, nor are the parts so easily retained in the memory when the chain of proportion is broken by introducing a new idea, which it must receive when the eye is forced to travel from object to object to circumscribe all its parts. In low buildings which are of an extended length, the distance or point of sight from the house may

chaste and bright hue of their buildings when entire and illuminated by a midday sun, having the force of this brilliancy increased by contrast with their solemn shadows, must have inspired an admiration which cannot be adequately produced by the same arrangements of detail in colder regions, and where the complexion of the stone is not favourable to the purpose.

These circumstances should receive full consideration from the architectural student, who will thence perhaps, in this as well as many other accounts, see how ineffectual is mere plagiarism towards inspiring a similar sentiment, and hope to imitate the judicious horticulturist, who fully considers the consequence of transplanting a tree from its congenial soil and climate to another unsuited to support the perfection of its nature. I said, the young architect who seeks the principles of his art, and studies at the same sources from which they were obtained by the ancient masters, will not only find his course directed and his labours lightened by the examples which are yet open to his observation; but if he be capable of duly appreciating the excellencies of their works, and the principles or rules they have produced, he will abstain from the too common practice of selecting parts from various works, and of combining them to make new designs; scorn the easy process of mere plagiarism: he must think for himself, and endeavour to rescue the art from the aspersions that are too often and too freely cast upon it by those uninformed of its merits or its powers.—(Papworth.)

* In some of our provincial town-houses, rusticated angles and rusticated keystones, heavy modillion cornices, dentils, and columns subdivided by square blocks of water-perforated stones, all of a prison-like cast, too frequently make up the façades or fronts.—(A.)

† Price on the Picturesque.

be equal to the length of the front, and then added together; say one hundred feet in front and fifty in depth, the point of distance will then be one hundred and fifty feet. Some have allowed the point of an equilateral triangle as the nearest point, but thirty degrees is the best that can be devised.

A STUDY.

ROCKS AND CAVERNS FREQUENTLY SUGGEST AN IDEA FOR THE COMPOSITION OF A BUILDING.

"Nature not only furnishes studies for the painter and the poet, but for the architect also, there being many peculiar and romantic objects which meet his eye that will give him a lesson."—*Essay on Picturesque Beauty.*

Principles of composition may be deduced from observation, and by study from whatever is romantic and beautiful in nature, and so transferred into the architect's design, as to preserve the character, without reminding us too forcibly of the source from whence the idea was obtained. The student in architecture will therefore do well to have recourse to these sources, by observing with assiduity the works and perfection of nature, and thus qualify himself to impart their inherent principles of beauty to all his works. Thus, if architects were to study the outlines of romantic rocks, when they are seen under peculiar circumstances, as of a misty atmosphere, or obliquity of the sun's rays on them,—which optically mystifies the object through the dense medium of shadow and reflected light,—different forms of buildings, as various as the figures produced by the kaleidoscope,* might be designed, that would be more in unison as well as more suitable to the general cast of rural and romantic scenery. By this the architect would produce new forms and new combinations, as well as avoid that sameness and monotony now so prevalent in our country residences, arising from provincial architects adopting similar designs to those already erected, or a prevailing fashion of style; or more frequently from published plans, without regard either to the features of the assigned spot, or the adjunct local circumstances connected with it. Rocks seen at a distance, under the effect of a morning twilight or an evening setting sun, assume at those times forms conveying the idea of cities, towns, castles, abbeys, and mansions, which, if sketched on the spot, at the instant of time while the impression is on the mind, and afterwards the boundary lines intermediately filled up with gables, pediments, turrets, and porticos, and the necessary windows and doors, they would give the most perfect designs for edifices both sublime, picturesque, and original.

In a journey through Africa, Mungo Park saw a rock of this description, which he at first conceived to be a Gothic cathedral, when he observed it at a distance, and stood for some time in suspense. "We travelled," says he, "through a country beautiful beyond imagination, with all the possible diversities of rock, sometimes towering up like ruined castles, spires, pyramids, &c. We passed one place so like a ruined abbey that we halted a little before we could satisfy ourselves that the windows, niches, round staircases, &c. were all natural rock. A faithful description of this place would certainly be deemed a fiction."†

Beer Rocks, on the southern coast of Devonshire, between Seaton and Axmouth, composed of an admirably fine white freestone, interspersed in places with vegetation, have the most enchanting appearance from Dowland's Farm. Here the cliffs were rent asunder on the 25th of December 1839, by some powerful agent, and are now standing erect, in piecemeal, at many yards' distance from each

* The kaleidoscope has been frequently used for the discovery of new patterns for carpets, both as to the diversity of figure and colour.—(A.)

† Park's Travels.

other, forming isolated masses, and producing the most sublime emotion on the mind of the beholder.* From this place, Beer Rocks† have all the appearance of a picturesque town, where the houses are rising above each other, presenting their white fronts to view, some of which appear surrounded with gardens: a village church is very conspicuous, and some of the cliffs appear crowned with a terrace of houses, on each side of which are neat marine villas.‡

On Dartmoor in Devonshire, in the immediate vicinity of High Tor, or Haytor, as it is commonly called, representations of very broken and picturesque outlines may be seen; and this appearance, when viewed from a certain distance, closely resembles that of extensive castellated ruins. On this land of desolation the groups of rocks in some places look like a city laid prostrate and forlorn.§ Among other rocks and in other places echoes are heard which strike on the ears like the sounds of the departed.‖ In Wales few objects give more delight and produce more fantastic shapes than the rocks at St. Gowan's Chapel, which form a concave semicircle, or amphitheatre towards the sea, commanding a fine marine prospect of the coast of Devon. This stupendous group is more sublimely grand than all the mosques in Turkey, and all the cathedrals in France, Germany, and Spain.¶ The same appearance has been met with in the clefts of the rocks projecting into the ocean, on the south side of the island of Mauritius, which is called the Souffleurs, that is, the blowers, from the following circumstance. A large mass of rock runs into the sea from the mainland, to which it is joined by a neck of rock not ten feet broad. The constant beating of the tremendous swell which rolls in has undermined it in every direction, till it has exactly the appearance of a Gothic building, with a number of arches in the centre of the rock, which is about thirty-five or forty feet above the sea.** Where rocks are seen towering up among stately trees, and partially covered with ivy, nothing can be more romantic and impressive. The imagination is excited, and we form the idea of its being a ruin, and once the abode of our forefathers in bygone days, or some hallowed place of worship, where its votaries have passed away into another world.

In some parts of Mesopotamia the rocks assume the most curious delineations, and in Macedonia they exhibit exact appearances of Lombard castles and watch-towers. On the banks of the Missouri there is another of these peculiar objects. Here the water has worn the sandstone into a multitude of fissures, where, with no great assistance from the imagination, the rock appears like elegant ranges of freestone buildings, with columns, galleries, and pedestals, some mutilated and others

* A similar landslip of great extent took place in the Isle of Wight in 1799, and another about 1806, produced by land-springs filtering through the stratum, and washing away the foundations.—(Webster's Description of Black Gang Chine.)

† A highly-carved chimneypiece, containing the family arms in the centre and emblazoned with colours, has lately been executed in this stone (which is equal to that in Normandy) for the billiard-room at Mamhead, the seat of Sir Robert William Newman, Bart., Devonshire.—(B.)

‡ Excursion by the Author to the Landslip, August 1840.

§ Briton and Brayley's Beauties of England and Wales.—Rocks have the appearance of ruins in our eyes only because they are neither square nor polished like the stones of our monuments. (De Saint Pierre's Studies of Nature, vol. ii. p. 380.) Travellers have frequently been struck by the appearance of such objects among the glaciers and snow-capped Alps in Switzerland.—(B.)

‖ Rocks and mountains are supposed by some nations to be peopled with aërial beings. The Icelanders imagine theirs to be the residence of spirits of an extremely small size, and exquisitely delicate feelings.—(Mallett's Northern Antiquities, vol. iii. pp. 46, 47.)

It is no wonder that the ancients, who embellished everything with allegory, should have thought these subterraneous abodes were inhabited, as echoes were frequently heard from them. Ossian calls Echo the son of the rock. The Highlanders believed, and do to the present day, that the repercussions of a rock were made by a spirit residing in its bosom. Near the Cape of Good Hope is a rock, called the Honey Rock, which has an echo that repeats several syllables.—(Rumberg, vol. iii. p. 172.)

¶ Bucher's Rudiments of Nature.

** Transactions of the Royal Geographical Society, vol. iii. part 1. Fingal's Cave in Scotland, and the Giant's Causeway in Ireland, both furnish studies for the architect.—(B.)

prostrate. Proceeding further, they appear varied by niches, alcoves, and other forms of desolated magnificence, as if the universe were fallen into ruins.*

A more extensive acquaintance with the works of nature will, however, show us that their appearances are not unique.† The cliffs near Tol-Pendn, Penwith, in Cornwall, in many places make a rude approach to a columnar structure, conveying a striking resemblance to some piece of gigantic architecture.

DISSERTATION I.

ON SITUATIONS FOR COUNTRY RESIDENCES.

"Near some fair town I 'd have a private seat,
Built uniform, not little nor too great;
Better if on a rising ground it stood,
On this side fields, on that a neighbouring wood.
A little garden grateful to the eye,
Where a cool rivulet runs murmuring by,
On whose delicious banks a stately row
Of shady limes or sycamores should grow;
At the end of which a silent study placed,
Should be with all the noblest authors graced."

POMFRET'S *Choice.*

One of the most essential qualities of good situations is that which is always the most conducive to health; and which must be on a knoll, sheltered by rising ground on the north and east, with a gentle declivity towards the south-east, an openness and airiness of country blended together, with a good home and distant scenery to the south-east and south-west. Gentlemen who intend to build, and have the power of fixing upon a spot where such are presented to their choice, should select a cheerful, animating, and pleasant situation, sedulously avoiding the proximity of marshes, or ground having a clay foundation, or where there are ponds of stagnant water. If a winding river, which has a pleasing and refreshing appearance, be near the site,‡ the house should be so placed as to be out of the reach of the vapours which always rise after nightfall from water at particular seasons of the year. A neighbourhood should also be selected where the inhabitants are healthful and remarkable for longevity, for these are regarded as signs of a healthful place, possessing salubrious air. An easy access to public roads is also essential; and near supplies of fuel and water adjoining the house, for use, are all necessary to be considered in the choice of a site. When we speak of a situation,

* Bucher's Sublimities of Nature. See also Bucke's Beauties, Harmonies, and Sublimities of Nature.

† The Grotto of Adelsburgh in Austria offers a splendid idea of the interior of a palace. Willis, an American, who visited it, says, "We came, after awhile, into a magnificent and spacious hall. It is called the ball-room, and used as such once a year, on the occasion of a certain Illyrian festa. The floor has been cleared of the stalagmites; the roof and sides are ornamented beyond all art with a balustrade of stalactites, containing the orchestra; and side-rooms are all around, where supper might be laid; and dressing-rooms in the style of a palace. I can imagine nothing more magnificent than such a scene, the literal description of it would even read like a fairy tale. In this grotto we were likewise shown into a small room like a chapel, with a pulpit, in which stood one of the guides, who gave us, as we stood beneath, an Illyrian exhortation. There was a sound-board above, and I have seen pulpits in old Gothic churches that seemed at first glance to have less method in their architecture."—(Pencillings by the Way, vol. ii.)

"Here, as to shame the temples deck'd
By skill of earthly architect,
Nature herself it seem'd would raise
A minster to her Maker's praise"—(Lord of the Isles.)

‡ A noble river, running majestically along, always imparts life and spirit to the scenery of its banks: motion to be dull must be sluggish, and the founders of cities, to ensure their permanency, exclusive of the convenience of water to float commodities, act wisely in studying this simple fact. The principal towns of most countries are so situated, except those which, like Versailles in France, have been forced into existence; places which nature only intended for corn-fields.—(My Note Book, vol. iii. p. 51.)

we naturally mean that of a house in the country. In cities and great towns where business is more regarded than a fine house, people are confined to build not what house they would prefer, but such as the place will admit; they are also confined to room, and must frequently conform to the designs of the adjoining buildings. What therefore regards a situation in this respect, rather concerns the formation of streets and of squares than that of private detached houses.* We shall consequently confine ourselves to situations for residences in the country, where a spot may be chosen according to the inclination of the owner, and where he has room to extend his house over what space of ground he pleases, without having any check upon his fancy as to the arrangement of its parts.

In all houses we seek comfort, convenience, and pleasure; but neither the one nor the other can be obtained unless we properly consider the place or situation; nor can the conveniences of life well be had, unless they are either produced near the spot, or there are common ways of conveyance for bringing them; the house therefore should stand either in the vicinity of a town or near a navigable river for transporting commodities.† As enjoyment cannot be expected where there is no health, so a situation must be chosen that is not affected with damp or unwholesome vapour. Next to this, the beauty of prospect and the advantages of rural diversions, as hunting and shooting are to be considered; these are principal objects: yet the lesser ones are not to be neglected or overlooked, for though it be convenient to be situated near a town, or in the way of cheap and convenient carriage of needful things, still it is a great advantage to have as many of these necessaries produced as near the house as possible. Connected with the home view, there should also be a gentle sloping lawn before the house, with undulating ground in the middle or separating scene, some picturesque hills in the distance, and around the mansion, trees in sufficient quantities for defence and shelter. At the back there should be off-ground for agricultural implements, and for fuel, and other such common articles and products of nature, and the means of raising such others as are to be the result of industry.‡

The distance of a house from a town I should have at least two miles, and to be approached by a public road at no great distance. An elevation of ground for the site, as we have already recom-

* Those towns where the streets are laid out at right-angles, so as to intersect each other, will have the freest currents of air: such is the city of Gloucester; here one or other of the four winds has always access. Some of our ancient towns were laid out in the form of the Latin cross, and each of the streets answered to the four cardinal points; such is that of Exeter. We may here notice that the south side of the street is the most conducive to health, having the daily sun, which, if too powerful, may always be moderated by having blinds, while those houses facing the north are excluded from the sun and exposed to a piercing wind: here the snow in the winter season will lie on the pavement for days together, producing dampness in the house, injuring the furniture, and subjecting to chronic complaints those who inhabit it.—(B.)

† A rural residence for a private gentleman of contemplative mind, should always be so situated as to be tranquil and retired, but still near enough to human beings not to be solitary.—(B.)

‡ "In selecting a spot on which to build," says Mario, "conveniences must not be overlooked, but be well considered, as to what supplies of water, of provision, of carriage, &c., can easily and speedily be obtained; for without these principal and necessary conveniences for the support of little commonwealths of families, a house would soon be deserted, and left a residence for the fowls of the air to retire to from the inclemencies of the weather, and a place of repose. But it is at the same time to be observed, those situations which produce such supplies are most difficult to be found, and perhaps with the addition of a healthy and fertile soil, uninterrupted vistas and avenues, and a delightful river containing fish, with picturesque banks, on some opening glade, with a distant prospect of hills and valleys diminishing from the eye with a pleasing gradation; I say, such an agreeable spot of ground, where nature revels in luxury, requires the first care of the architect to select, and when occupied by a suitable or appropriate design, composed so as to blend art and nature together, will consequently render it the delight of the inhabitants, and an inexpressible pleasure to the eye of the beholder. A person who builds on such a useful and delightful glebe must doubtless not only improve that fortune which Providence has supplied him with, but likewise perpetuate his taste and judgment to his posterity, and render to his offspring that happiness and pleasure, which alone give a true relish to life; while he who on the contrary lays the foundation of his fabric on a barren or unpleasant soil, or on a bleak wild, which nature seems to have deserted and consigned to sterility, is consequently only perpetuating his folly to future ages."—(A.)

mended, has not only the advantage of dryness and little moisture, but more wholesome air and a better view are obtained than in flats and hollows; the air has also here a more free current. but these advantages are found only in moderate heights, for extremes in everything will be faulty. All gentle elevations of ground are therefore the most convenient sites for houses; but the architect must remember not to select a spot on the top of a hill, for there the air is too sharp and bleak,* and such places are commonly barren, besides their being excessively cold in the winter and exposed to rain, as well as insufferably hot in the summer. Although eminences are agreeable, we find moderate ones are always the most so. The higher the elevation, the more necessity there will be for shelter, and in general the more difficulty to obtain it; all the means of shelter are here confined to trees, and these will grow but slowly, and perhaps become stunted; and if they thrive, there will be howling wind in winter nights, which will be melancholy and awful indeed: this is the ill effect of trees; and if the house is placed here it must have those accompaniments. Besides the exposure and bleakness of very high situations, it is here difficult to obtain water, and where that is not to be had in sufficient quantities, such a place would be objectionable; neither will there be good verdure. The prospect from such a place is commanding, but the contrast of what one sees in the distance with what one has near is annoying, for when we view the fertility of the valley below, the barrenness of our own situation is the more conspicuous. A knoll on the side of a hill, for this reason, is preferable to the summit; but the declivity should be gentle, otherwise the approach to the house will be difficult, and all the walks about it tiresome.†

If the situation permitted it, I should choose a spot where some verdant hill was contiguous to the north front, and about a mile distant, to shelter the trees on that side of the house, which should extend round it about one-third of a circle; this would render the situation here in the winter more agreeable: the south-east and west fronts should be all open, and the prospect no way intercepted. Little walks, and avenues cut through the woods at some distance, would always in summer be agreeable for vistas. It is to be remembered that, although the house is to be placed on the side of a hill, the ground must be level for some distance around the spot, or the mansion in the winter season will be swamped by rain from the upland behind, and soak into the very foundation, whereby the timbers in the ground-floor will become rotten, and the carpets and furniture destroyed. The best site is that where the height is just sufficient to give us a command of the valley below; and where there are trees to shelter us from the more disagreeable and strong winds, but not to block up the prospect. If the house be for a person of moderate income, let there be as much ground taken up as will serve his own convenience; but if for the owner of a large domain, let it be placed as nearly as can be contrived in the centre of his possessions. There is a pleasure that none but the man of fortune knows in commanding an extensive prospect every way from his house, and knowing that all he sees is his own.‡

* I have seen many houses in Italy situated on the brow of a hill, where the spot has been very cheerful; but then they were sheltered by an amphitheatre of hills on the north and east, and open only to the south and west.—(My Note Book, vol. iii. p. 57.)

† In the choice of a proper aspect for a dwelling, the country and climate must be considered; for that which would be advisable in England would be an injudicious choice in the East Indies and the southern parts of Europe. The south or the south-east is the most proper aspect for an English dwelling, and at the same time it enables the architect to give a northern aspect to some of the domestic offices, such as the wine-cellar, the dairy, and the larder. The most wholesome aspect for a bed-room is decidedly the south-east, and to a valetudinarian the northern is the most injurious.—(B.)

‡ The country around a gentleman's seat, even to a great distance, may be said to become the property of the eye, consequently its situation and disposition are to be regarded. With respect to prospect, the more cultivated, the more healthful and cheerful; and the more rocky and woody, with falls of water, will in proportion be its romantic and beautiful appearance; but there is a melancholy aspect in a desert place. Where the ground rises in an agreeable

It is better at all times to have a house sheltered by verdant hills and trees, than by rocks or mountain scenery; in the first instance the air keeps the trees in motion, yielding a cooling and refreshing breeze, which during the heat of the summer months is not only animating but pleasing; and in winter these also serve to break off the keenness of the blasting winds and rending tempests; whereas mountains, if near, according to their position, protect only from certain gales, and if their situation lie directly north, and they incline towards the south, they will in that case be found extremely unpleasant to persons in the rooms at particular seasons of the year; such as in the midsummer months, when the bed-rooms will be like ovens; for by facing the south, the rock will become exceedingly heated, through its inclination to the daily sun, and reflect its heat so as to become quite insupportable; and if the mountain be of limestone, (for smooth and bright surfaces reflect the most heat,) it will produce the most painful consequences, such as vertigo, biliousness, and occasionally affections of the liver.*

Retirement is what we generally seek in the country; but it is to be remembered that it must not be too absolute: we all fancy we should be pleased with it, but few can bear it in the extreme. When we first think of leaving a populous city the charms of retirement appear double, because of the contrast to the noise and hurry we have left; but when the comparison is once forgotten we grow weary of the monotony of the scene: retirement is then apt to produce melancholy; and we should therefore seek the means of remedying its fatigue, for it is greater than that of business. If we have nothing to amuse us and exhilarate the spirits, the blood becomes sluggish, and hypochondriacal diseases ensue. Let us, however, have these objects in our power to apply to, if we please, or need them, and we shall then probably be less inclined towards them.

The remedies for the melancholic are company and conversation; let us therefore so situate our house that we may receive them if we are so disposed, and which may be so done without forcing them on ourselves when we are not obliged to receive them. Company in the country is a medicine; it nauseates when we do not want it, but it elevates when we are melancholy; and man is made for social intercourse. Let the person, therefore, who retires, where he has his choice, not build his house in the midst of others, for that were like remaining in a town; nor, on the other extreme, bury himself in a desert or wilderness, out of the reach of every person, for there he will be forlorn. Let

slope, so that two or three views may be seen from the same point, the objects are the more pleasing; and a road at a proper distance, or a majestic navigable river, with barks gliding on its silvery surface, presents a sort of continued moving picture, like the objects around us when we are travelling rapidly along, while sitting in the inside of a coach, or as seen in a diorama.

The great desideratum in a prospect is variety and extent; one without the other is tiresome. There is something composed and cheerful at the same time in a near or home view; but it is a limited prospect, and we grow weary of it if there be not a large field of vision, as well as where the extent is in a manner every way unbounded, for after awhile we observe only the clouds and the horizon; and another consideration is, that people, when they are long accustomed to look at a prospect, are more alive to its faults than its beauties. The prospect which is altogether too extensive is better to be borne with than that which is every way too limited, because here is a constant and successive changing of the aërial colours in the distant hills, morning, noon, and evening. In the morning, when the god of day is first rising and chasing away the rolling mist between the hills, and cheering the earth with his silvery beams; and again in the evening, when he is descending in his golden car with all the colours of the rainbow in his train. In all views we can obstruct the sight when we cannot enlarge its scope or field of vision; for it is easy to block up a view with clumps of trees when it is disagreeable, but we cannot cut through a mountain. It is the misfortune of our optical senses that many cannot see distinctly at a great distance; and hence arises that defect in our minds, that vast views destroy and overwhelm the apprehension, so that seeing too much we regard nothing; but this we can palliate, the other is without remedy.—(B.)

* Ancona in Italy (a name supposed to be derived from its reclining posture) is well adapted to health and enjoyment: it is seated on the side of a hill, forming a semicircular bay, sheltered by its summit from the exhalations of the south, covered by a bold promontory from the blasts of the north, and open only to the breezes of the west, and the gales that wanton on the unruffled bosom of the waters which bathe its feet, surrounded by fields of inexhaustible fertility. Ancona seems formed for the abode of mirth and luxury. Hence it has been remarked by travellers, that the inhabitants of Ancona are of a more beautiful and fairer colour than their countrywomen in general.—(Eustace.)

him choose the place for his house where there is retirement; but let it be within reach of company, then it will be enjoyed, admired, and rendered conducive both to health of body and of mind.*

The lower sort of country people are not to be considered in this light in respect to the neighbourhood, nor indeed are the uneducated tradesmen of retired fortune; these two ranks are generally company only for those of their own degree. Let the neighbourhood contain some members of families possessing taste and talent, whom he can visit upon equal terms, and whom he can receive as they receive him, namely, with pleasure and profit, and without ostentation.

Finally, we may observe that a situation where the grounds around the house get speedily dry after rain, but not sandy; that has a fine temperate air, good, clear, sparkling water, an extensive prospect of hill and dale on the south, picturesque and romantic scenery on the west, defended by upland or bold promontories, with undulating hills, on the north; that enjoys, at a moderate distance in the rear of the house, a good soil for the garden, with stately-growing luxuriant trees around the house, and rural walks for exercise, all varied, and avoiding every wind which may blow from the different points of the compass,—such a place may be said to be perfect as far as perfection will apply. He who selects such a spot as we have thus described, needs not scruple at laying out any expense in a fine dwelling-house, for he will be sure never to be tired of it, and if circumstances should afterwards compel him to leave it, he will never want an opportunity of disposing of it to advantage. Lastly,

"Would you to nature's laws obedience yield,
Would you a house for health or pleasure build,
Where is there such a situation found
As where the country spreads its blessings round?"
HORACE, Epist. x. Book I.

DISSERTATION II.

ON THE SIGNS OF A HEALTHFUL SITUATION.

"Auspicious Health appeared on Zephyr's wings;
She seemed a Cherub most divinely bright,
More soft than air, more gay than morning light.
Hail, blooming Goddess! thou propitious power,
Whose blessings mortals next to life implore.
With so much lustre your bright looks endear,
That cottages are courts when you appear;
Mankind, as you vouchsafe to smile or frown,
Find ease in charms, or anguish in a crown."—GARTH.

In this discourse I shall show in what degree or on what circumstance the healthfulness of a place depends: perhaps it will not be difficult, with a little examination, to determine in what measure any particular spot has this great advantage. To do this we shall add certain common and familiar observations by which it will be known by sight; and this will be sufficient to determine in a general way, without further examination, and a more particular and accurate investigation will always

* Overlooking the Bay of Naples is a promontory named Posilipo, a beautiful spot, justly honoured with its appellation, and the scenery around truly Elysian: no scene is better calculated to banish melancholy and exhilarate the mind. It took its name from a villa of Vertius Pollio, erected in the time of Augustus, and called Pensilypum, from the effect which its beauty was supposed to produce in suspending sorrow and anxiety. (A cheerful spot and temperate air will naturally produce serenity of mind.) On such a promontory as this, overlooking a vale and a winding stream, Michael Angelo had his picturesque Italian villa. The former spot is honoured with the tomb of Virgil.—(Eustace's Classical Tour.)

confirm it. We shall first, then, direct the inquirer's attention, as a general idea of salubrity, to a gravel foundation and the goodness of the earth, then to the growth of trees and herbage that he sees upon it, for these have all great influence on the air and on the constitution of man;* and we shall in the same manner advise him to make his first conjecture by the general face of things, including even that of the buildings as well as the inhabitants, and to demonstrate and confirm the result of these inquiries afterwards.

With respect to the old buildings in the neighbourhood, if he perceives the slates of the roof and the stones of the walls sound, clear, and fresh on the surface, it is a proof that the air is pure and dry; on the other hand, if the roofs and walls be stained, tinged, or clogged with green, yellow, grey, and other coloured moss, and if lichens and herbage are growing upon them in abundance, we may look upon it as a proof that the air is damp and bad; and frequently here the masonry may be seen corroded with hollow, perforated, or indented reddish streaks, a further proof of unhealthiness.† In general he will find the buildings that stand on elevated situations, and good free soils with gravel below and in a free pure air, assume the former character; while those which are situated in low lands on damp soils with clay substrata, and the house choked up around with trees and thick underwood, are of the latter character.

If trees, by their regular growth and freeness from moss, with a thriving aspect, declare the goodness of the ground,‡ let him next observe the cattle in the adjoining fields, to ascertain what is the condition of their health, on which the air as well as the vegetation and water materially act. Provided the pasture and water be good, these animals cannot fail to thrive; but where there is a fault in either, the cattle will be sure to show it by their appearance. If they be sleek, brisk, and strong, it shows that the air is good and the water pure and wholesome; if they be feeble, ragged, poor, and dull in their movements, the fault is commonly in one of these two particulars, and most probably in the latter.

From the brute creatures let us turn to the inhabitants of the place, for in them, particularly in their faces and conditions, we shall read the most certain accounts of the general healthiness or unhealthiness of the situation. A good body, buoyant spirits, fresh complexion, and strength to labour, are marks of health that can neither be disputed nor mistaken; and such healthy and good-constitutioned people are sure to be found in those distant towns near commons and heaths,§ where the air is bracing, and in those milder and pretty villages through which a pure stream of water is constantly gliding:‖ it is here the inhabitants are sure to be free from those headaches

* The elements of which vegetables are chiefly composed are oxygen, carbon, and hydrogen, which they throw out; and with these and the assistance of light and heat nature forms all the different varieties of vegetation with which we are surrounded: the lily, the violet, the tulip, the rose, with all their various tints and perfumes, are only more delicate arrangements of the same materials which form the massy oak and stately fir.—(Elements of Chemistry.)

† These perforations on the face of the stones are produced by a nitrous acid, which combines with calcareous earth, and forms what is termed earthy soft patre. Of the former, where there is a putrid fermentation of animal and vegetable matter in hot countries, it is known to effervesce from the earth in large quantities, so as to destroy the very masonry of the houses.—(Brenton's Naval Hist., vol. iii. p. 139.)

‡ The elm, it may be observed, is always found growing on good ground, the oak on the bad; but the elm must have a moist soil, while the oak requires the dry.—(B.)

§ Norden, who published, in 1595, an Historical and Chronological Description of Middlesex, says of Highgate, which is situated near a common, "Upon this hill is most pleasant dwelling, yet not so pleasant as healthful; for the expert inhabitants there report that divers that have been visited with sickness not available by physicke, have in a short time repaired their health by that sweet salutary air." Norwood, Sydenham, and Beulah on the Surrey side of London may surely now vie with Highgate.—(B.)

‖ I shall here give a poetical description of such a sequestered spot, which I have lately visited, and where the enemies to the picturesque have not yet lifted the hand of art to destroy the beauties of nature. Here is attraction both of wood

which prevail in towns where they have not the advantage of this running brook through its streets.*

There is something in the air of a healthful situation that is, as it were, the object both of taste and smell; we perceive it as we inhale it, particularly in the morning; we feel its lightness by its buoyancy on our spirits, and are scarcely ever mistaken in judging of it by that means; but it is only in mid-heights or elevated places that we enjoy the effect of its purity. In the same manner that we perceive this the moment we breathe it,† so we are struck at once by that appearance of robust health we see in the faces of the inhabitants in healthy spots; nor are we more mistaken in one than in the other. Our own species are the most helpless and tender from youth to age of all the animal creation, and feel the bad effects of air sooner than the others; but we are endued with reason, which is denied to the brute. The cattle will show the natural effects in a bad place, as has already been observed.‡

Men show the lesser defects of the place in their countenances, and are affected by every fault to which the spot may be subject, whether by that of impure air or water. As we are liable to more disorders than other creatures, and these, too, more easily fall upon us, it is a reason why we should endeavour to guard or avoid what occasions them. When we have our choice of the many counties in England in which to fix our residence, it would be an unpardonable error to seat ourselves where any great inconveniences prevail, much more where the means of preserving health are absent, which is the greatest of all.§ We should therefore well consider the healthiness of the place by all the signs which have been enumerated, as well as whether it is subject to frequent

and water; and pretty, neat, unassuming little villas are seen peering among the trees which surround them, each situated in a garden, and rising over each other, like the seats of an amphitheatre, in gentle, sloping terraces. Now,

"This village has a pleasant look,
A happy look as e'er was seen.
Right through the valley flows a brook,
Which winds in many a flowery nook,
And freshens all the green.
On either side, so clean and white,
A row of cottages you see,
And jessamines are clustered o'er
The humble trellis of each door,
Then left to clamber free,
And shake their blossoms far and wide
O'er all the whitewashed cottage side."
(Budleigh-Salterton, Devonshire.)

* Abundance of water constantly runs through the city of Salisbury.

† Damp, cold air may be observed by breath from the nostrils, which cannot be perceived in a dry and warm air. This is common in the winter season; but heavy air is known by its weight on our eyelids.—(B.)

‡ It must be borne in mind that their disorders are at times, nevertheless, produced by being in the open fields, where they are exposed to storms, rain, snow, and sleet, and by lying on the ground in very wet seasons.—(B.)

§ If, say the Persians, the soil of Ispahan, the fresh air of Herat, and the waters of Kharassan were united in one spot, the inhabitants of it would never die. (Persian Proverb.) Ecbatana, now Hamadan, was the summer capital of the sovereigns of the Persian empire from the time of Cyrus, while the winter metropolis was Susa. The intense heat of summer in the plain of the Tigris, in which Susa was situated, and the very mild character of the winter, rendered a residence in it as inconvenient in the one season as desirable in the other; while, on the other hand, the elevated site of Ecbatana gave so much mildness to its summer heat and severity to its winter cold, that it enjoyed a mild climate when that of Susa was most oppressive, and a severe climate when that of Susa was mild. This periodical change of residence by the Persian kings attracted the attention of most heathen writers, one of whom, Ælian, compared them to cranes, that change their places with the seasons. (The same was observed of Lucullus from his choice of villas.)

The description of this summer city, as given by Herodotus, is so curious that we cannot omit it. He says it was built by order of Deioces, who first established the Median monarchy: here he caused his subjects to build a city, which eclipsed all others then existing in Media. It stood on a circular hill, which was surrounded by seven walls, rising within each other in such a manner that each wall rose above the next without it by the height of its battlements. The royal palace was within the last wall. The most extended of the walls at the base of the hill was nearly equal to the circumference of Athens. The battlements of this outer wall were white those of the second, black; of the third, purple; of the

changes of weather arising from local attractions, before we determine on making it our place of abode; for remember, though we may now be in good health,* yet we are not sure how long we may be allowed to enjoy that benefit, and that

> "Though the blessing 's lost with ease,
> 'T is not recovered when we please."—Dr. Cotton.

That climate has a great effect on the spirits we have instances at Naples; for in that capital may be observed a great activity of mind among the inhabitants, and a wonderful aptitude, fostered by the serenity of the atmosphere: the people there excel in every branch of science and composition; so beautiful is its neighbourhood, so delicate its climate. Before it spreads the sea, with its bays, promontories, and islands; behind it rise mountains and rocks in every fantastic form, and always clothed in verdure; on each side swelling hills and hillocks, covered with groves, and gardens, and orchards, blooming with fruit and flowers. Every morning a gale springing from the sea brings vigour and coolness with it, and tempers the greatest heats of summer with its freshness. Every evening a breeze from the hills, and sweeping all the perfumes of the country, fills the nightly atmosphere with fragrance. It is no wonder that the Romans covered its coasts with their villas, and that so many poets should have made the delicious Parthenope their theme and their retreat.†

The general occasion of some places being unhealthy we shall treat of in the next Dissertation, when regarding air; and occasionally after that, on the water and the soil, and other local circumstances; but here the attention is to be drawn to the plain and most certain methods of satisfying ourselves, or judging rightly by self-evident rules. There is this, namely, to be observed respecting the healthiness of a place, that one man may have, by a peculiar circumstance, an advantage over another in fixing upon a spot particularly healthy; but it is better with this advantage when all the grounds which environ the site are healthy, and the house good also; for where the adjacent grounds contain stagnant water and thick brushwood obstructing the air, this peculiar spot is not of itself a sufficient benefit, for the good air may be affected by the bad, therefore the circumjacent grounds should be equally considered and examined. The complexion and bodily strength of the inhabitants, as we have before remarked, will, however, show the general constitution of the country in that particular spot, and such select situations may always be obtained. Finally, that person would be but very weak of intellect who should fix his residence where every person he met was shivering with an ague, had pallid cheeks, or a hectic cough; while, on the contrary, he might be reasonably tempted to the spot where he saw nothing but health in the countenances of the people, scarcely the trace of a recent grave in the parish churchyard, and read of eighties and nineties on their tombstones. Now, above all, I should recommend a place where there was but one medical practitioner; and he, for want of business, should be as lean as Shakspeare's apothecary in Romeo and Juliet.‡

fourth, blue; of the fifth, orange: the battlements of each wall being thus distinguished by a different colour. The battlements of the last two (uppermost and innermost walls) were plated, one with silver and the other with gold. Such a city must, on a distant view, have made a very striking appearance when illumined by a midday sun.—(H.)

* "O blessed Health! thou art above all gold and treasure. 'T is thou who enlargest the soul and openest all its powers to receive instruction and to relish virtue. He that has thee, has little more to wish for, and he that is so wretched as to want thee, wants everything with thee."—Sterne.

† Eustace's Classical Tour.

‡ Act v. Scene 1.

DISSERTATION III.

ON THE GENERAL PROPERTIES OF AIR.

"This guest of summer,
The temple-haunting martlet, does approve,
By his loved mansionry, that the heaven's breath
Smells wooingly here: no jutty frieze, buttress,
Nor coigne of 'vantage, but this bird hath made
His pendent bed, and procreant cradle. Where they
Most breed and haunt, I have observed the air is delicate."

SHAKSPEARE'S *Macbeth.*

We should consider the air amongst the first and most important advantages in a situation, because it is for the benefit of this that we frequently retire into the country; and we live so immediately by it that the very period of our existence will be greatly determined by its qualities:* our health will of necessity depend upon it, and upon that the enjoyment of every other blessing. Our consideration of air is not here for the sick, for according to the different nature of disorders various temperatures of air are required; sharpness being the principal recommendation to some, while softness is more congenial to others. These are considerations alone which regard the choice of an occasional spot for the recovery of health; but our inquiry is here respecting such a quality of air as will preserve health, one that is buoyant, salubrious, and most universally agreeable.†

More essential is it to choose a good air for our place of residence, because that which is faulty, it is not always in our power to correct, although, under some local circumstances, we may mitigate it. If, for instance, the place be choked up with trees and thick underwood, obstructing the free circulation of air, or if there be growing around the spot baneful weeds, such as deadly nightshade, hemlock, henbane, &c., "within whose rind poison lurks, holding an enmity with the blood of man;"

* Light and heat are essential to life as well as air. The sun produces both; and where that agent has not access, as in a dark room, and plants have been placed therein, they have been soon observed to die. Hence the reason of more of the human race dying by night than by day.—(Rogers' Astronomical Lectures.)

† To comprehend the nature of air and the atmosphere in which we live, which is indeed of itself one of the principal agents of our existence, it is necessary to state, that the atmosphere is supposed to ascend upwards from the surface of our earth a little more than five miles: in the winter season, on account of its heaviness, it is of course less; above which is ether. That it is composed of two different fluids, which have been described by natural philosophers under the appellation of azotic and oxygen gas, or phlogisticated and vital air. (The air we breathe is composed of two gases, oxygen and nitrogen, in the proportion of twenty-two of the former to seventy-eight of the latter. If we take the same gases and reverse the proportions, combining seventy-five of oxygen with twenty-five of nitrogen, we produce that powerful corrosive agent nitrous acid or aquafortis.) In one hundred parts of atmospheric air there are contained about seventy-two parts of azotic gas to twenty-seven of oxygen, besides one part of carbonic acid gas or fixed air, which is generally found united with them; or, to speak in round numbers we may say, that the air of our atmosphere we breathe contains rather better than one-fourth of pure or respirable air, and that a remaining three-fourths are unfit for respiration and equally unfit for combustion, since the same fluid which supports flame is equally found to contribute to the support of animal life.—(Priestley on Air.)

Azotic gas being specifically lighter than oxygen, it might naturally be supposed that, since they only exist in the atmosphere in a mixed state, and not in a state of chemical combination, a spontaneous separation would take place, and the azotic would occupy the higher regions in the atmosphere; whereas it is found by experiments with the eudiometer, that the upper regions of the air actually contain a greater proportion of oxygen than those nearest the surface of the earth.—(Brisson.)

Extraordinary as the mixture of fluids in the atmosphere may appear, it is essential to our earth, and even our existence, and demonstrates no less the wisdom than the goodness of Divine Providence. This pure vital air, so wholesome, so necessary in a moderate quality, like spirituous liquors or salutary medicines, must be dispensed with precaution, as it would be fatal in the excess. If we were indeed to breathe pure oxygen air without any mixture of alloy, we should infallibly perish by the unnatural and fatal accumulation of heat in our bodies. If, again, the whole atmosphere was composed only of vital air, combustion would not proceed in that gradual and moderate manner, which is necessary to the purposes of life and of society; even iron and all the metals themselves would then blaze with a rapidity which would carry destruction through the whole expanse of nature.—(B.)

or a place which is surrounded with quagmires and foul waters, the habitations of newts and tadpoles, which will also render the air unwholesome;—if this be the sole cause, and it belongs to the same proprietor, the air may be amended by cutting down the former and filling up the latter places; but if this is not entirely the occasion of its badness, then it cannot be obviated but in a certain degree, and that, perhaps, attended with a great expense. When the effect arises from natural causes, and the air is in any great degree polluted, no price will purchase the perfect cure; it is altogether beyond the power of human capability.*

As we always live surrounded with air, and perceive by daily experience that it can and does enter, with all its qualities, into our constitution, and that when bad or impure it vitiates the whole fluid of the human blood, it is necessary to examine the air on the spot, by some philosophical experiments, before we begin to build. In the most general instances of the air being vitiated by circumstances or by accidents of nature, we find that it occasions very alarming and desperate diseases. Where the air is always damp, ague, rheumatism, fluxes, cholic, and consumption are frequent; and wherever it is impregnated with the steam of mineral matter or from gas-works, palsies and other of the greater and lesser nervous disorders are certain to be the consequences. It is in the same manner that the air, in whatever way it is faulty, will, according to the nature of that taint, affect the constitution. When we have once sat down in it, we cannot remove without giving up all that we have been doing in building and planting. Many instances might here be adduced, if necessary, of such inconsiderate undertakings, to show how absolute is the folly of imagining that art and ingenious contrivances can always correct it. That the felling of thick woods and draining meadows and marshes render a country more healthful is readily admitted.† But marshes even at a distance, and though they may belong to a neighbouring proprietor, yet we know that water raised in vapours is rendered portable even upon the wings of the lightest breeze, and is wafted with greater facility than air itself into the higher and mountainous regions of the land.

As many disorders are evidently the constant and certain effects of bad air, health, comfort, and cheerfulness naturally follow from breathing that which is fine and pure. To be good, in general

* All the vegetable tribe emit gas, and so do all poisonous liquids and substances: thus stagnant water diffuses a quantity of mephitic air or vapours through the surrounding atmosphere, and some of these consume the pure or vital air. Even the vapour of pure water in considerable quantities is pernicious to animal life. Of this the Arabs were well aware, who being intent on injuring the Turks at Bassora, broke down the banks of the river near the city, so as to permit it to overflow a great tract of land, a violent fever being generally the consequence of the putrid mass left behind after the water had evaporated.—(Cave on Air, p. 457.)

By the evaporation from our earth, the air contains a large quantity of water which even in the driest state of the weather is very considerable. We may be said to walk in an ocean, though this water does not ordinarily become the object of our senses: we cannot see it, nor, whilst it continues dissolved in the air, do we feel that it wets us; but it is still water though it be neither tangible nor visible; just as sugar when dissolved in water is still sugar, though we can neither see nor feel it. We may conclude that the Almighty, when he separated the chaotic mass into air and water, did not render them two oceans, so wholly heterogeneous from each other as that they should be incapable of contracting any union; they have, on the contrary, such a disposition to unite as seems to indicate their having had a common origin; and were it not for the intervention of heat they would probably unite, and again compose a common mass. The water on the surface of the earth is constantly replete with air, and the atmosphere is replete with water. The numerous tribes of aquatic animals which inhabit the ocean would perish if it contained no air, and it is not an improbable conjecture that the animals which exist in the air would perish if it contained no water. The air moreover by being absorbed into the water, and afterwards separated from it by the action of the sun, is rendered abundantly more fit for animal respiration than common air; and this purified air (the quantity of which, considering the great extent of the surface of the earth, which is, says Lehman, two-thirds covered with water, must be considerable) cannot be but one great means of restoring to the whole mass of air those salubrious qualities of which it is daily deprived by the respiration of animals, the putrefaction of bodies, the combustion of fuel, and other causes.—(Watson's Chemical Essays.)

† Cultivation, without doubt, while it opens the thick recesses of woods, and carries away stagnant waters, not only purifies but warms the atmosphere, and from thence extends its beneficial influence to the adjacent countries: this we have observed in America, where the yellow fever, which prevailed to an alarming degree on the first colonization of that country, has now greatly subsided.—(My Note Book.)

vital air must be neither too sharp, too thick, nor too soft; it must be pure in itself and elastic; if otherwise, as we have observed, it must be within the reach of practical amelioration. These artificial amendments, however, are in most attempts imaginary, and often nugatory, consisting of draining and planting to shut out the keen north-east wind on the one side, and in opening vistas to let in south-west breezes on the other, which will render the air around the mansion more salubrious. Air may be too light for respiration by being too much rarefied; that is, when it is dry and hot, as in sandy deserts and near a tropical sun, which there produces languor. It may also be too much condensed by vapour; that is, when it is misty and heavy; and thus it is that we find our spirits depressed in rainy weather.* Cold or dry brisk air is always bracing to the human frame; however, it should be neither of these to any great degree, for much cold, much dry, or much wet, particularly where those changes are frequent and sudden, produces baneful effects on the constitution.

We have now given instances of the principal causes that make air bad in itself; but when there are neither of these, such as marshy exhalations nor mineral streams, though the air may be good, yet it requires certain natural causes to keep it in that condition, like exercise to preserve our bodies in health. If the vast water in the sea, now kept in continual motion and fluctuation by the attraction of the moon, and by the influence of winds, was to become motionless, it would soon become foul. It is the same with respect to the air, motion is necessary to keep this pure, as wind is needful to keep the other from pollution. Wind, which is but air put in motion, is produced by the elastic fluid being expanded by heat, or compressed by cold, when it exhibits signs of great influence and acquires action. Like water, it is always more or less in motion till it has acquired an equilibrium: hence a breeze, a gale, or a storm. Thus the agitation of the sea, and its particles ascending into the air, and the evaporation from majestic rivers which wind on their way through the valleys of a country, have the happiest effect in purifying the atmosphere. We have observed that air requires the warmth of the sun to assist in purifying it, as well as the action of winds to give it circulation, and that heat is the cause of motion, consequently a dwelling-house situated in a northern aspect, where the sun cannot have that effect, nor the air freely surround the house, it being impeded by wood, must be chilly and unhealthy. If therefore we erect our dwelling facing the north, where these agents cannot have access, we shall condemn ourselves to breathe a foul and unwholesome air. Nothing is well that is not in the course of nature: the sun and winds were meant to purify the air, and where these cannot penetrate they will not have the advantages universally intended. We see therefore the great faults in bad air and to what it is owing, and that as rational beings it is in our power to avoid it by a proper choice of place. If, therefore, we keep not this caution in view, we may be woefully led, by some trifling pecuniary consideration, to sacrifice

* As to the heaviness or lightness of air, its variation is thus occasioned: when the clouds are low and nearly stationary, we find the air is heavy; while on a clear sunny day, with a gentle breeze, we feel a lightness in our spirits which depends upon the rarefication of the air by the sun and the power it has at the time. Atmospheric air, considered in itself, is a ponderous, compressible, elastic, transparent body, without colour, invisible, and condensible by any degree of cold that can be produced in the temperature of the earth. The fluidity of the air is caused by the matter of fire or heat, (latent caloric,) which produces in it a degree of elasticity, that always tends to dilate the mass, and preserves the motion of its parts. If the air was not elastic, it might be formed into a new body, like snow when its particles are pressed forcibly together. —(Muschenbroeck.)

From all experiments that have been made, and particularly the one by Torricelli, it appears that air is a heavy fluid, and by means of its gravity the atmosphere presses with great force upon all bodies in proportion to the extent of their surfaces. Paschal says, "The quantity of this pressure is not less than two thousand two hundred and thirty-two pounds upon every square foot of surface, or upwards of fifteen pounds upon every square inch. Computing therefore the surface at fifteen square feet, the whole pressure which each person sustains will be nearly three thousand four hundred and eighty pounds. By this enormous pressure we should undoubtedly be crushed in a moment if every part of our body was not filled with air or some other elastic fluid, the spring of which is sufficient to counteract the pressure."—(P.)

the greatest and most essential benefits which nature has intended for our happiness and well-being.*

The summer is the season in which we more constantly remain in the country, yet in some parts of England it is the least healthful part of the year: the supply of oxygen gas is then the most copious from vegetables, therefore we are to be more cautious not to add to natural imperfections the disadvantage of an unwholesome air. Upon the principle already laid down, the practice easily follows. As we see what are the occasions of the faults in air, let us avoid them in our choice of situation, and fix our house on an open rising-ground, where the air, being in itself pure, will be free and in continual motion; the advantage of a prospect brings this also with it. When we see a vast tract of country before us, we breathe an air that spreads itself at large in all that space; the elevation of the ground giving a descent for the draining of moisture, it will not stagnate about the house; and the air being pure, will continue so, because it will not be loaded by exhalations from marshes or swampy meadows, and the house will always be open to the effect of the sun and winds. For this reason we have said, that houses near commons and uplands, on a gravel substratum, where there are purling brooks, are the most healthful; while those on low grounds near marshes are the very reverse. To this it may be remarked in confirmation, that where malignant fevers have attacked people in valleys, the patients have been known to recover immediately on being removed to high grounds.†

It was the custom of our forefathers to build in valleys and surround their houses with trees, and sometimes to erect them between hills; and those houses which were built in more elevated situations frequently faced the east, and sometimes even the north, the most unhealthful aspects as well as the most unpleasant situations that could have been selected, or ever have entered into the mind of man to adopt. As every one is desirous of showing his house to the best advantage, he should therefore erect it high up on a gentle rising ground, and of a moderate distance from the banks of a winding brook or meandering river. The side of a hill too always disposes the house in the form of a picture, by which every part of it is seen near as well as at a distance. In a valley, a house is

* Damps are drawn up from the earth by the sun, and carried off by the winds, and then incorporated with other bodies: such is the water which mingles with the atmosphere to render it fit for respiration; thus water itself cannot be exposed in an open vessel without suffering diminution of its bulk; and, indeed, in course of time, the whole will be exhaled. Vapour, it is to be observed, proceeds always from the surface of bodies, and rises more copiously from a grassy plain or from loose earth than from any simple surface; and it is always more or less in quantity according to the temperature of the atmosphere: at one experiment it has been ascertained that one thousand nine hundred and seventy-three gallons have evaporated from an acre of grass in twelve hours. It is the vapour exhaled in this manner from the earth which we see rising over a new-ploughed field in the height of summer, and which forms those mists commonly observed in marshy grounds. If a hole is broken in the ice in the depth of winter we may observe a mist rise from it: the water being warmer than the air, emits a vapour, which the cold condenses and renders visible. It is the same vapour which, when condensed by the cold of the night, forms the dew which is observed in small globules like pearls upon the leaves of plants.—(A.)

Agreeably to this theory is the common observation, that in very cold weather vapours become visible almost as soon as they are formed; thus in frosty weather the breath (which, like steam, is vapour) from the lungs is visible when emitted. The clouds themselves are also vapours, first emitted from the earth, but invisible in their ascent: when they reach the higher or colder regions of the atmosphere they become condensed and reflect the solar rays, and then to us become visible. If those vapours happen to meet with cold winds in their progress of ascent,—which is commonly about a mile from the earth, but varies according to the rarefication of the air,—then they appear to us in the form of clouds. The bright and rich colours seen on them are from the caloric matter with which they are charged, and likewise from the sun's rays which fall on them.—(Dr. Gregory on Natural Phenomena.)

† This high ground is not to be considered as referring to mountains, for the thin atmosphere of the Alps, and the consequent rapid evaporation of moisture, is the well-known cause of the lassitude and inclination to sleep which are there experienced, while some are depressed, or rather intoxicated, and then stupified by these feelings at a much less height than others. The transition being so sudden on ascending from a warm valley to the height of nine thousand feet, and perpetual snows, the effect on many constitutions is first insensibly swooning, and then violent fevers and swelling of the flesh; and thus mules suffer so much uneasiness in ascending to the height of ten thousand feet, that they can scarcely stand.—(See Archdeacon Cox and Dr. Beattie's Travels in Switzerland.)

badly diposed for a view, and in such places there is sure to be much wet, because the rains will descend in rills from the high grounds and settle there, rendering the house damp, and from such places also the sun has not sufficient power to exhale it again. These houses, it is true, are sheltered from certain winds—and this was the great reason for these sites being chosen in bygone days—but they are subject to the disadvantage of stagnant air, and of being at most times annoyed with fog, which lingers there. If open to the ocean, they are exposed at particular seasons, to violent drafts of wind, rushing up the valley as if blown through a tunnel,* and further, to dense smoke being beaten down the chimney-flues into the rooms by the winds from the uplands—the greatest of all nuisances. Here too the owner shuts himself out from all prospect, which, with a good and healthful air, are the two things most to be desired, and should always be connected.†

We have now examined the nature and qualities of air, and seen how essential it is to health and to the animal spirits, and how much it depends upon, or is influenced by, the situation of the spot itself, or acted upon by noxious objects in the vicinity. A free and open circulation of air we have shown is of absolute necessity to its being good, and for this purpose we are to avoid the extremes of an air too moist or too sharp; the first defect being natural to the places that lie low, the other to such as stand very high. Upon too elevated a spot we are much exposed to the wind and rain, as we are upon low lands to an oppressive sun and fogs. When we fix upon a situation for a house that is too low, where there is a clayey soil, or near a swampy meadow or marsh, we have fogs all winter, stagnant water and bad smells in summer, and are oppressed with heat, subjecting ourselves to nervous, hypochondriacal, and chronic disorders. Thus in neither of these cases have we a pure or wholesome air; and hence we are led to see that in all considerations, that place which is the most open, but not exposed to blasts or powerful winds, and free to the sun, and which has a moderate degree of dryness yet with sufficient moisture, should be chosen. Such salubrious air we are most likely to find on some gently rising ground, where there is an open country in front, facing the south-east, bold protecting hills in the rear towards the north, and on each side fir-crested undulating

* This objection does not extend to those pretty towns on the south and west coasts of England, in the form of crescents, known by the name of Combes: their situations along the margin of the sea are of all others extremely healthy, but they must face the south, and be approached by roads at each end of the crescent, avoiding a direct road either from the north or the east.—(My Note Book.)

† There is more vapour lingering in valleys in winter than in summer; because in summer the earth, like boiling water, throws up more steam, but being then more rarefied it does not hover about the earth, but ascends to the higher regions: in winter, the earth being cold, the vapours become quickly condensed and form fog, which is observed to hang in valleys for days together, while they are known to pass quickly up the side of hills. The vapours having once ascended, as we have already observed, they form clouds, which in summer are higher than in winter, and more broken and picturesque in mountainous countries than in level ones, on account of the various currents of wind. There are also more clouds in a cold country than in a hot one. In Egypt the sky is generally clear, and in Greece the clouds are fleecy.

That fogs hanging about the earth are unwholesome, being impregnated with infectious atoms, we may conclude from the concurrent testimony of different writers. It sometimes happens, say they, from the state of the atmosphere, in a concurrence of circumstances not easily ascertained, that a great quantity of aqueous particles are raised into the atmosphere, where, being not completely dissolved, they form a thick vapour; these particles destroying the transparency of the atmosphere form fogs, and which are more frequent in low, wet, and marshy situations than in such parts of a country as are elevated and dry. It sometimes happens that certain exhalations, as malaria, are mixed with fogs, which are perceived by the unpleasant smell, or an acute sensation which is felt in the throat and eyes. Fogs are much more frequent in cold climates than in warm, because in the former the aqueous particles being condensed almost as soon as emitted from the earth, are incapable of rising into the higher parts of the atmosphere. If the cold is augmented, the fog freezes and attaches itself in small icicles to the branches of trees, to the hair and clothes of persons exposed to it, to the blades of grass, &c. When fogs rise to a considerable height in the atmosphere, and are collected into a dense state from the action of the air, like the exhalations before referred to, they form clouds, which float in different regions of the atmosphere according to their specific gravity, since they necessarily rise or fall till they arrive at that part of the atmosphere which is in equilibrium with themselves. As the heaviest part of the atmosphere is that nearest our globe, so dense and thick clouds which are at the point of uniting into rain, float near the surface of the earth, while the fleecy and thin clouds soar aloft: thus we often observe both kinds at different heights in the atmosphere at the same time. As clouds are formed of water, they are not copiously produced when the air has most opportunity of acting on the fluid; consequently winds which blow from the west and south-west over the Atlantic Ocean bring more clouds to this country than easterly winds, which pass over a narrow channel of the sea.—(Dr. Gregory.)

eminences, overlooking a rich winding valley, where from amongst the trees is seen peering the spire of the village church—the whole forming an agreeable and diversified prospect.

DISSERTATION IV.

ON THE COMPOUND NATURE AND QUALITIES OF WATER.

"God spake, and bade the deep divide;
The earth uprears her head;
From hill, from rock, the gushing streams
In bubbling torrents spread."
KRUMMACHER'S *Days of Creation.*

Water, which was considered by the ancients one of the elements of all created matter, comes next under our observation, and as the former article is requisite for everything breathing, so is this article also indispensably necessary for the common purposes of life. A knowledge of its qualities is therefore of importance, being the most requisite of all others for health and longevity. This element is a transparent, colourless liquid, having in its pure state neither smell nor taste; its properties however are different, and vary in certain places, according to the nature of the substrata through which it percolates, carrying with it in its course a tincture of the rock itself, or the chalks or particular soils, becoming at last impregnated with saline or other substances, from which it acquires a peculiar flavour, and is thus rendered unfit for domestic use; this is known by the name of mineral water.*

As water was long reckoned by philosophers one of the four elements,† so its extensive use appears throughout the works of nature, water being that universal solvent which divides and rends in pieces the solid parts of everything, and imbibes and carries them away with itself. From hence we are furnished with a cause for the various changes that take place in nature, for without water no fertility, nutrition, or increase can take place in the regions of nature. We see no putrefaction nor decomposition without moisture, nor can remedies operate upon human bodies, nor fluids act upon solids, but by means of water. Our daily and solid food without fluids would be deprived of all its use and benefit. The part which this fluid bears in every purpose or employment of our lives, not only in the several trades and manufactures, but in dressing our food, in the air we breathe,

* Water at one time was universally considered as a simple elementary substance, but it is now found to be composed of two gases, oxygen and hydrogen, united in the proportion of eight to one in weight; so that nine pounds of water contain eight pounds of oxygen and one pound of hydrogen, or the basis of inflammable air chemically combined. This very useful and necessary fluid presents itself to our notice in three distinct forms; first in its liquid state, which in the summer season ascends in vapour, mist, or steam; and lastly in a solid state, as ice, hail, or snow, in the winter season. Without entering into the question as to the cause of this change in the form of water, we may consider that the very small particles of which it is composed are capable of being acted upon by two opposite forces. By one of these, which is called the attraction of cohesion, the particles of the body are drawn together; by the other, which is called the force of repulsion, they have a tendency to separate from one another. If the attractive force is the stronger, the body requires force to separate its parts, or it is a solid: if the attractive and repulsive forces are exactly equal, the parts of the body can be separated by the least force, or the body is a fluid; if the repulsive force is the stronger, the particles require some force to keep them near one another, the body resists compression, or it is an air or vapour.—(R.)

Heat has the property of increasing the repulsive or expansive powers of the particles of bodies, and a very simple experiment would show the manner in which water may assume the form of a solid or fluid, or a vapour, by the influence of heat. Though water is a fluid it is not then in a simple state, for its fluidity depends on a certain quality of caloric, or the matter of heat, which enters into combination with it; and insinuating itself between the particles of the water, renders them capable of moving in all directions. This may seem strange to those unacquainted with experimental chemistry, but the very ocean itself is impregnated with phosphorus, as may be seen at night to a common observer by the splashing of oars from a boat riding on its surface, which appear like sparks of fire. So the beautiful rainbow in the heavens, which presents a variety of colours, is in itself really of no colour, those that appear being but reflections of the sun's rays, which is often produced on waterfalls. "Mille trahit varios, adverso sole, colores."—(Chemical Essays.)

† Hoffman, Observat. Physico.-Chemic. lib. ii. obs. 7. See the preceding Note.

and in all our personal operations, renders it of daily and universal importance,—essentially necessary to our comfort and convenience, and to our health and lives. Thus, when the architect has fixed upon a spot of ground for his house, such as has a fine prospect, a good air, and is in a respectable neighbourhood, let him search for water, and see whether there is any to be obtained on the spot, and in what quantity; then let him examine its quality for domestic purposes; for where water cannot be found or is not good, no other advantages which the place possesses can compensate for this deficiency. Observe, that water may be too abundant on the spot as well as too scanty in the supply, and that it may be a plague as well as a benefit to the dwelling-house. The architect is, in these cases, to keep two things in his view, namely, to provide convenience and to obviate accidents; for without a proper regard to both, he may run in the way of one while procuring the other. Our first object being to find a healthy and convenient spot, we have advised an elevated situation, as well as a navigable river near it, which, in two respects, provides almost for the others; but as the latter is not always to be obtained, we must show how to atone for the deficiency. If we cannot obtain the advantages of a noble river, let there be at least, if possible, a clear running brook in the vicinity, for this has more advantages than can be imagined by those who have not searched deeply into these things. Some choose the first to sail on its surface, and the second to fish in its pools; others, for contemplation while roaming along its meandering banks.* It also greatly conduces to health, by refreshing the air in summer, for running water at all times acts as a gentle wind, and puts the air, to a certain degree, in motion, which rests upon it; air, like water, is so thoroughly moveable, that when it is once stirred in any one part, the effect spreads on every side to a great distance, which we find by the salt-water sprays from the ocean, when agitated and thrown into the air, being then felt far inland. Again, the vital or empyreal air we breathe equally requires certain moisture, without which we should in summer be exhausted by caloric—there being then a redundancy of animal heat in the human body; and hence, whatever moisture is given out by animal perspiration must be again supplied by some other source, or we should fall into lassitude.

The conveniency of sufficient water for a house is very great; a defect in this respect has more disadvantages than almost any other: the danger of having any bad effect from a great quantity is prevented where it forms a running stream. The garden near the residence may thus be well watered, and the house in every respect supplied for the necessary use. These are the advantages of running water, and for which it is to be extremely valued; but inasmuch as we would, for this reason, seek to be near running water, we must avoid a great quantity of such as stagnates, the effect of which is in every respect exactly the contrary of the other. As nothing affords so pleasing a prospect as a running stream, nothing can be more offensive than a standing pond. In running water there is motion, and the surface is sparkling, silvery, and clear; while standing water is muddy, covered with filth and ill-favoured weeds, and these perhaps even of a poisonous nature. Running water

* Devonshire abounds with more rivers, brooks, rivulets, and springs than any other English county; a circumstance to be attributed, no doubt, to the number and elevation of its hills, (such as Dartmoor, the source of most of the rivers in this county,) which, attracting the clouds and vapours that arise from an immense track of sea, and intercepting their progress, receive from these never-failing reservoirs abundant supplies of moisture. "All rivers," says the preacher, "run into the sea, yet the sea is not full: unto the place from whence they come, thither they return again." (Eccles. i. 7.) Thus the immense and inconceivable quantities of water that, arising from the sea and the earth into the atmosphere, by universal and incessant evaporation, are condensed, and again discharged, and deposited upon the earth's surface in rains, dews, and mists, are amply sufficient to supply all the springs that rise and streams which abound in the world. The reduction and failure of these springs, moreover, in seasons of great and long-continued drought, afford plain indications from whence their supplies are obtained.—(Moore's History of Devon, vol. i.)

evaporates and purifies the air; standing water impregnates it with offensive and noxious vapours. Nothing contributes so much to fill the air with disagreeable and unwholesome miasmata as stagnant or marsh water; even fish will die in it if the water is not frequently changed by a fresh ingress and egress to modify and carry off that which had been for some time retained.*

Nor is the above the only inconvenience confined to this article of health, for we are likewise troubled with insects and vermin in places where there are large standing waters: gnats, and a multitude of other little flies, are always found about standing water, for they breed there, and are very troublesome. The gnats in particular cannot exist in any abundance but where there is standing water: that fly lays its eggs upon the surface of a pond, and never anywhere else; and from these is hatched a little worm, which lives and feeds in the water for some time, till it undergoes a change like that of the caterpillar, which insect, like the butterfly, is produced from its body. The gnats do not lay their eggs upon the running water, because the current would carry them away; neither does the worm that is produced from them thrive except in such as is thick and foul; about these places, therefore, there will always be a vast quantity of these and similar insects, as well as toad-spawn and tadpoles, from which running waters are free. What we have said of the air is equally true as regards the water; as its faults and imperfections breed particular disorders in those who breathe it, so do those of the water in such as drink it, whether in its crude state or however altered by boiling. The difference of waters is greater than is generally imagined. Rain-water differs from that of springs, and that of springs from river-water. All water which falls in rain undergoes a natural distillation, and is much more pure and soft when it falls than after it has passed through different strata of the earth, and rises in springs.† Spring-water is therefore found to contain some foreign admixture; if this should be earthy and brackish, the water is called hard; if it contains other substances, it then receives the denomination of mineral-water. That water is the fittest for general use which is the purest and most free from all heterogeneous particles, or unmixed with any foreign substance, whether of the animal, vegetable, or mineral kind: but an absolutely pure and unmixed elementary water we can indeed scarcely procure; for whatever bodies it meets with, as we have just observed, it will generally carry some of their particles along with it; and more especially if it come into contact with any of those salts which are plentifully dispersed through the animal, vegetable, and mineral kingdoms: even in passing through air it will attract some particles which change its property; and whatever vessels we keep it in, we generally find a sensible change. We must therefore be content with that which contains the fewest of these incongruous parts, and those of the most inoffensive kind; that is, such as give the least hindrance or disturbance to its natural operations, more especially such as may be injurious to the animal body, or that work any change in the human constitution. This is a consideration of great importance,

* The purest water which can be produced is obtained by melting freshly-formed snow, or by receiving rain in clear vessels at a distance from houses; but even this water is not absolutely pure, as it contains portions of gas. Pure water was first made artificially by Mr. Cavendish: it was effected by the combustion of two measures of hydrogen gas with one of oxygen. All water, as before stated, which has been in contact with the ground, becomes impregnated with more or less earthy or saline matter, but from which it can be separated by distillation, and this distilled water is absolutely pure; though pure water produced by this means is not altogether wholesome, neither is snow-water. The water of Bala Lake, in Merionethshire in Wales, is so pure that a chemist had difficulty in detecting any earthy matter in it. Its flavour is exceedingly grateful.—(N.)

† In Switzerland and the Tyrol, the inhabitants are subject to what is called the goître, which is a swelling in the fore part of the throat, occasioning a wry neck, attributed entirely to the water they drink in the valleys, which is produced from the melted snows that descend from the Alps. Mr. Coxe supposes the impregnation of the waters to be stony, not metallic: the same occurrences are however to be met with in some parts of Derbyshire.—(Coxe's Travels in Switzerland.)

for those substances are often so small in quantity, that they operate by slow and imperceptible degrees,* and their effects by this means may often escape the nicest observation; yet by long and constant perseverance they may become very prejudicial if not destructive.

"Non vi sed sæpe cadendo,
Gutta cavat lapidem."

Even poisons of the most pernicious kind have been known by experience to be contained in mineral waters, which were yet so subtile that the nicest chemical analysis could not discover them.† This should teach us not to be too hasty nor too peremptory in our conclusions, and that we should have something to depend upon before we pronounce any particular water to be salutary.‡ Omitting here the marvellous properties ascribed by ancient writers to some foreign waters, making thieves blind, others depriving a person of his senses, and some again of restoring them to their first state, we shall consider it of more importance to examine and ascertain the differences of water in our own country, in their several natures and kinds, as regards health and convenience, there being many manifest signs and criteria by which we can often form a tolerable judgment, with as much certainty and precision as the nature of the subject and our comprehension will allow.

First then let the architect employ a skilful chemist to examine and analyze the water which is immediately upon the spot, and that of the river which is near, to find how far its qualities are likely to answer the purposes of life and health, for the health and comfort of a family are greatly dependent upon the nature of the water which they consume. Inattention to this very important point, in choosing a situation for a residence, has frequently proved the after-cause of universal dissatisfaction, if not the abandonment of the house altogether. The first and one of the most obvious properties is its fluidity, that its parts may be separated with the least known force, and easily moved amongst one another. We know that the purest water yields to the least force, and allows solid bodies to move in it with the least resistance; and hence if we observe any tenacity or clamminess, we judge that its parts are held together by some intervening substance, and that something besides water is contained in it. This tenacity may often be discovered by moving the hand or any other body in it, by pouring it out of one vessel into another, or by observing the drops whether they are round and small or large and pointed. Hippocrates recommends the lightest waters as the most wholesome, which appears confirmed by Herodotus, who tells us of a very healthy and long-lived people who drank a water so light that most kinds of wood sank in it.§ This is well countenanced by experiments upon the waters brought from Africa by our seamen; whence there is great reason for concluding that the father of Greek history was correct, and thus it gave

"Health to the sick and solace to the swain."

After lightness, let the water be examined by the eye and by the taste; that which is most transparent is to be preferred; but it should never have the least bad taste or smell. Goodness of water, say some authors, depends on its being in running streams, neither stagnant, muddy, nor leaving any

* Dr. Percival.

† Hoffman de Venenis.

‡ We have the authority of a very accurate experimental traveller to vouch that there is water in Africa lighter by four ounces in the pint than the common water in England, and that there is also water in Spain of an intoxicating quality; so great is the difference in countries. At the foot of Mount St. Julian, near Pisa, there is a spring of such excellence, that in the earlier part of the last century it was sold in Florence dearer than common wine. (Misson, vol. ii. p. 297.) The Grand Duke drank no other beverage, and upon dropping a little rose-water into a glass of it it became as white as milk.—(G.)

§ Lignum vitæ and several of the heavier woods will sink in our freshwater rivers.—(R.)

particles in the vessel in which it may be placed; its remoteness from ponds; and to be clear and light, lying on a bed of sand or gravel, and without any mud or slime as a sediment.*

It is an established observation, that the best waters boil and cool again the quickest; and that they evaporate in the least time and with the least degree of heat. These effects are undoubtedly owing in some measure to their more perfect fluidity, by which their parts are more easily separated and carried off. Another appearance in the best waters may partly arise from the same cause, and that is their sparkling in a glass, and forming a number of air-bubbles on the sides of the vessels which contain them. All water contains a large quantity of air, or some subtile elastic fluid; and when the pressure of the atmosphere is taken off from the surface and considerably diminished, so as to destroy the equilibrium, this fluid will expand and come out in very great quantities, rising in bubbles from the bottom of the glass, and from every part of the water, increasing in their ascent. Some† have maintained that there is a subtile ethereal spirit in water which manifests itself in these bubbles. Some waters do indeed contain a very large quantity of such a spirit, the Pyrmont particularly will sparkle in the glass and fly like champagne; but this cannot be a mark of its purity, but is rather a proof of a large mixture of some particular body in it; and accordingly we find from the proportion of its contents that it is very far from a simple water, for upon evaporation it leaves sometimes nearly twenty grains of residuum to a pint.‡ But there are several waters which leave scarcely a twentieth part of this quantity, and consequently approach much nearer to a state of purity. Another circumstance which greatly varies this appearance in the warmth or coldness of the water is, that all elastic fluids are condensed by cold and rarefied by heat, consequently if water taken out of a well or brought from a cool cellar be colder than the circumambient air, the superior warmth of the air will expand the elastic parts which were before in a compressed state, and they will form into numbers of these little round bubbles, and when they are urged by a boiling heat, the whole body of the water is turned into an elastic steam, and flies off, excepting a small proportion of earth or salts that remains in the residuum.

Further, it is to be remarked, that after observing what appearances are made at the spring-head, and in the channel through which the water flows, as whether any ochreous or chalky sediment be left upon the stones, or whether the water has any film or scum at the top, we should take up a sufficient quantity of it into a clean, well-corked glass bottle, and subject it to the following trials, which are judged necessary. First, the most common and easiest method of judging whether water contains any considerable mixture of saline matter, is to put a little of it into a clean, thin

* In travelling to the Red Sea from Alexandria, Belzoni says, "After entering the Desert we were parched with thirst, but at last found two wells, which the traveller in that country hails with as much joy as the sailor who first sees land after a long voyage: the water of one of these wells was soft, the other quite putrid and brackish. There are few waters, says he, in the world better than that of the Nile, and now to have to drink the worst was such a change in one day that we could not help feeling the consequences of it. Mr. Beechy was taken very ill from drinking of the first well, and we had great apprehensions from the next, which was worse. Another well was found near the Red Sea that was better."—(Belzoni's Journey to the Red Sea, vol. ii. p. 40.)

In Persia the water of the river Choaspes was so good that it was not allowed to be drunk by any but the kings, and was carried with them in vessels of silver wherever they went.

"There Susa, by Choaspes' amber stream,
The drink of none but kings."—(Paradise Regained, book ii.)

The Persians by a law permitted those who conveyed a spring to any place which had not been watered before, to enjoy the benefit for five generations; and as a number of rivulets flowed from Mount Taurus, they spared no expense in directing the course of their streams. At this day, without knowing how they came thither, they are found in the fields and gardens. —(Stawell.)

† Mr. Boyle

‡ Rutty's Synopsis, p. 315.

glass, and having ready prepared a saturated solution of the saccharum saturni, or sugar of lead, in clear water: let two or three drops fall into the glass, and if it make no cloud, milkiness, or precipitation, we may be pretty sure that the water contains no quantity of mineral salt that we need regard, for one grain of salt of almost any kind, put into a pint of pure distilled water, will discover a cloud and wheyishness upon dropping in a little of this solution, and after standing a few hours will form a thin crust upon the sides of the glass. If there be any very considerable quantity of acid, alkaline, or neutral salt, three drops of this solution will instantly turn a wine-glass full quite tinted and milky, and in proportion to the quality of the contents, these effects will vary, so as to afford an opportunity of forming some probable conjecture about them. This trial is so very easy, and at the same time determines so quickly the comparative purity of most waters, that it may always be recommended.

The more useful, and indeed the best way of determining the hardness or softness of water, is by scraping any quantity of soap, (such as that of Castile,) and observing how it dissolves or lathers: if the water be perfectly soft, the soap will dissolve quickly, uniformly, and without curdling, and upon shaking the glass briskly, will raise a strong froth or lather at the top; but the smallest degree of hardness will show itself either by the soap not dissolving so readily, by its turning curdy and uneven, only less froth remaining after it is agitated; and the different degrees of hardness may hereby be very well determined. This is tried the best with a small quantity of soap, as about a grain to an ounce of water. Water, as we have said, should be entirely free from any particular taste or smell, and perfectly insipid, otherwise we may safely conclude that it is impure. It ought likewise to be soft, limpid, bright, and transparent; still several good waters, and especially river water, will be muddy and opaque, but this can scarcely be called an imperfection if they subside and become clear upon standing, like that of the Thames; yet whatever water shows any other than its natural colour, that of a pearl or blue tint,* is certainly impure.

And further it is to be observed whether water boils garden-stuff well. River-water is commonly good for this purpose, and pump-water generally the reverse: however, if the fault in the latter be not great, it may be borne with, and remedied by pumping up into pails a sufficient quantity of water in the morning, and then letting it stand for some time in the open air, by which it will be softened. Though a brook may run through the grounds, yet it is always required to have spring-water in the servants' court-lidge of a house: in fact, that house is best situated in respect of water which has good and wholesome springs for its wells. An agreeable stream of running water, with falls at a moderate distance, is desirable alike for beauty and pleasure, as well as its pools for the duck, widgeon, and stately swan.

ON THE FORMATION OF WELLS.

As wells are frequently necessary to be dug, and water sometimes lies at a great depth, it will be proper here to give some explanation of springs. Now water which falls on the surface of the earth, upon mountains and hills, in rain and snow, penetrates its surface, and descends downwards till it meets with a stratum of marl, clay, or stone; it then glides laterally on the stratum which sustains it,

* In Geneva the observer's attention is always arrested by the peculiar blue tint of the water of the Rhone which runs through the city, and thus shows its extreme purity.—(B.)

in the direction to which it leans; when on meeting with an aperture it again appears on the surface of the earth in the form of a spring, and winds its way along the valley to the ocean. Now as water has always a tendency to descend, springs are always lower than the source from which they are supplied. Springs are also most common on the sides and at the bottoms of mountains; they are seldom found quite at the summit of a mountain, and are rare where a country is everywhere level to a considerable distance, because there the strata are horizontal, and do not conduct the waters to any particular point.* Therefore, in order to obtain water in flat countries, it is generally necessary to dig into the earth and form wells, when it is found to flow copiously from the sides of the opening at no great distance from the surface. When wells are dug in elevated situations, water is seldom met with till we have dug to a considerable depth, and got below the general level of the country.

I shall here observe, that where wells are necessary to be dug they ought to be done at first, for fear that after the house is built no water should be found on the spot;† and these are to be sunk in such places where the pump will stand most conveniently: the wells are likewise to be of such depth as to obtain a sufficient quantity of water, and low enough to retain that supply in the summer season. When a reasonable conjecture can be made at what depth the water may be found, the diameter of the well should be proportioned to its expected depth. This may sometimes be known by the wells in the neighbouring places, and then finished with a lining of brick or stonework, which will need no further care for ages.‡

Finally, the collection of water between the strata lies so different in various places, that the depth of the wells is necessary to be five, six, or eight times as great in some places as in others, not accounting the extremes of either: but sometimes a great deal of expense in digging wells where they are deep may be saved by boring. This method is practised in France and Italy with great success, and has also been very happily tried in several counties in England, particularly Kent and Sussex. The expense of this is so much less than that of digging wells to the required depth in the usual manner, that where the situation of the place renders it at all likely of success, and water is to be found at a moderate depth, it should be tried. Where it is most likely to succeed is in those places encompassed with hills at a distance, or in a flat country. In the Isle of Wight, a few years ago, a well was dug three hundred feet deep before a drop of water was found, and this was at the level of the ocean: hence in the neighbourhood of the sea the necessary depth of wells may be easily ascertained by merely observing the level of the ocean, and which in the island of Bermuda appears to be their guide. It is necessary to observe, they have also found here that by going a few feet deeper it has been of serious consequences, for the salt-water has then rushed in

* In contemplating this beautiful arrangement of hill and dale, it is impossible not to call to mind the language of David: "He sendeth the springs into the valleys which run among the hills. They give drink to every beast of the field; the wild asses quench their thirst: by them shall the fowls of the air have their habitation and sing among the branches. He watereth the hills from his chambers; the earth is satisfied with the fruit of thy works."—(Psalm civ. 10-13.)

† In sinking wells, for want of timely consideration, injudicious situations have often been selected, and mansions erected at a distance from copious sources of water which have afterwards been discovered with regret.

‡ A curious circumstance occurs in making wells at Modena and Stiria in Italy. The workmen begin by digging through several strata or soils, till they come to a very hard kind of earth, much resembling chalk; here they begin their masons' work, and build up a circular wall, which they carry on leisurely till they get to the top without being interrupted by any depth of water, and without the least apprehension of not finding it when they come to make the experiment. The well being finished, they then bore through the hard bed of chalk upon which the well is built, with a long auger, but taking care to get out of the well before they draw it out again; which when they have done, the water springs up into the well, and in a little time rises to the brim; nay, sometimes overflows the neighbouring grounds. Now there can be little doubt that the water flows from reservoirs, which are collected within the Apennine mountains, not far from Modena, and taking their course through subterranean passages, endeavour to force their ascent to the same height from which they descend whenever they can find vent.—(Travels in Italy.)

and mixed with the fresh. This, I think, will be a sufficient caution to those gentlemen who may be about to build under similar circumstances.

DISSERTATION V.

ON THE SPECIFIC NATURE OF THE VEGETATIVE EARTH AND ITS SUBSTRATA.

"Naturalists have compared the structure of the earth to the coats of an onion. And the philosopher has shown that its form is oblong, like that of an elliptical egg, revolving on an imaginary axis; and supposes the centre of the earth to be about four thousand miles in depth, and eight thousand to the antipodes."—WHITHURST.

It surely concerns us all to know something of the ground we tread upon, of the country we inhabit, and of the sources and natural associations of the infinitely varied products with which the earthly world assuages our wants, increases our comforts, and multiplies the luxuries of life. The land or soil of the domain must therefore not be less considered than the situation of the mansion, or the nature of the air and the qualities of the water. This is far from being a trivial object, for both the air and water, which are allowed to be such important matters, are frequently, if not always, affected by it. We are therefore now to consider it in this light, and afterwards in regard to that which more immediately concerns its fertility, which is one of our chief purposes; though the strata for the foundation, on which the mansion is to be erected, demand an equal and serious attention, and we have already said, that in selecting an appropriate site for a dwelling-house, the gravelly foundation on account of its porosity is to be primarily preferred. We have seen that the air is influenced by unwholesome vapours arising from the earth, and the water by the strata through which it is distilled in passing through the crevices of the high ground, after it has fallen in rain: but these grievous occurrences, where they are frequent, generally proceed from a greater depth than is commonly understood. Happily for us this country is not much subject to the frequent maladies arising from long droughts or exhalations of malaria from marshes. But there is a point of consideration of that nature by which the soil is greatly and immediately affected; this is the loading of the air with moisture from detained waters secreted in the bowels of the earth.*

When we dig through the vegetative soil, we usually come to gravel, sand, or clay, or to a mixture of these unconsolidated materials; and in some countries we shall probably find nothing but marl or chalk at the greatest depths which we are able to penetrate. But in many places, after getting through the gravel and clay, we come upon stone, lying in layers or beds, sometimes horizontal at others inclined, parallel to each other, either of one kind, or of different kinds, according to the depths, and which would vary in different countries and in different places in the same country, as well as in its constituent parts, or in the same thickness, alternation, and position of its beds or layers. How long and in what degree the rains will be detained within reach of the surface, is altogether determined by the nature of the ground, its inclination, and the position of the substrata beneath, which

* We have shown that the earth is a round body, though of a somewhat flattened shape, like those larger pebbles on the sea-coast; the diameter from pole to pole being about twenty-seven miles less than that passing through the equator. Now more than three-fifths of the surface of the globe is covered by the ocean; and the land rises from the surface of the sea in the form of islands, and of great continuous masses called continents, without any regularity of outline, either where it comes in contact with the water or in vertical elevation; its surface being diversified by plains, valleys, hills, and mountains, which sometimes rise to the height of twenty-six thousand feet above the level of the sea. As different climates produce different races of animals, so they do different species of plants; but the substrata under the earth, as far as the nature of foundations, such as gravel and stone, are concerned, (which latter we shall treat of in the next section,) is independent of the influence of climate; the same substrata and rocks being found on the polar and in the equatorial regions. Although there is considerable diversity in the structure of the earth, it is not in any degree connected with the particular zones.—(G.)

come immediately under the architect's consideration in reference to the foundation of the house, as well as the fertility and healthiness of the spot. The lands or soils in England may be divided into three general kinds, loamy, sandy, and clayey, and the substrata below into gravel, marl, or a stratified rock, which are frequently found in layers inclining at different angles, and which may be seen in the banks and sides of high roads throughout the different counties. The loamy is the best soil, and affords the most nutriment; containing vegetable matter. The sandy is the lightest and loosest, and the clayey is the toughest and heaviest, and not much esteemed by the agriculturist; these two last are the extremes. The loamy consists of earth, mixed with decomposed vegetable substances, and intermixed sometimes with sand and clay; it is therefore of a compound or middle nature between the other two.*

On positive gravel or rough sand there is always a healthy dryness in the air, particularly the former; but as to vegetation, if the latter is too near the earth it will let the rain soak through it too quickly, so that not enough of the moisture is detained for the common purposes of the growth of plants; and the dampness and sharpness of the air in higher situations, with this former soil, are too much for many constitutions. On the other hand, when the soil is of a thick tenacious clay, if it be in the extreme its strong adhesive power prevents the filtration of the water that falls in rain upon it from penetrating through. It is therefore detained too long, imparting a continual dampness round the house, causing it both to be offensive and unwholesome; here all is in the other extreme. If the clay lie upon the surface, it will be damp and slippery in wet weather, and crack and chop in dry; both of which are very disagreeable, and objectionable as to health and vegetation; and if it lie at a little depth under the surface, the rains, though they penetrate easily to it through the earth, are detained there for a considerable time, chilling the roots of the plants, and by that either rotting or stopping their growth, as well as preserving a continual swampy moisture.†

The loam, which is of a middle nature, and between these soils, is subject to neither of the previous defects: it receives rain freely, and detains it sufficiently, but not injuriously; there being enough moisture in the earth to soften by its vapours the great sharpness of the air, but not so much

* The crust of the earth is supposed to have been formed at different periods, each period is therefore called a formation. Primitive earth among ancient philosophers was one of the four elements of which the whole system of nature was thought to be composed. Earths are defined by Cronstedt to be such substances as are not ductile, mostly indissoluble in water or oil, preserve their constitution in a strong heat, insipid, and not dissoluble in boiling water. The earths are called primitive or simple, because they cannot be decomposed by any method hitherto known. The celebrated compound soil of Campania in Italy, called pula, is black. The black colour of soils is the effect of putrefaction and decomposition. The influence of caloric is increased on a dark-coloured soil, the rays being absorbed. It has also been remarked that the peasants of the Alps spread black mould over the surface in the spring to dissolve snow: it is well known that a black dress attracts heat and that a white repels it.—(Stovel.)

† Now those various soils are generally peculiar to the different positions of the earth's surface; the clayey to the low ground, the loamy to the midland, and the sandy to high land. It is here we see the order of the universe, now so beautifully diversified with hill and dale, and the mountains that shade and fructify the valleys by their streams; for the valleys are more or less extensive furrows of the surface, ramifying generally to a considerable lateral extent, and independent of secondary purposes, fulfilling that most essential one of draining the adjacent lands of their water, and carrying it into brooks and streamlets, which gradually unite to form rivers, and ultimately convey their contents into the ocean, of which, in fact, they constitute a series of ascending branches. Is not this seeming disorder and confusion of hill and dale, which appears evidently a part of the order and harmony of the universe, prepared progressively as a fit habitation for man? If all the strata had remained horizontally, that is, parallel to the surface of the globe, it is clear that we should never have become acquainted with any other than the upper members of these series, and that the beds of coal, rock-salt, and the ores of the metals, all of which are confined to the inferior strata, could never have been made available for the purposes of man. Without this elevation of strata, the earth would have presented a monotonous plain, unbroken by the beautiful forms of hill and valley, or the majestic and sublime scenery of mountains. With these irregularities of the surface are ultimately connected all the varieties of climes, and the diversified products of animal and vegetable life dependent thereon, as well as the whole of what may be termed the aqueous machinery of the land; the fertilizing and refreshing rains, the source of springs, inland lakes, and the course of rivers and brooks, in their endless ramifications of rivulets. Throughout all this reigns such a harmony that it is evident that the breaking up of the earth's crust is not an irregular disturbance, but a work of design, in perfect accordance with the whole economy of nature.—(Dr. Gregory's Elements.)

as to chill the roots of plants or occasion a dampness at the bottom. We have said that the architect is not required, like the physician, to select an air that will be suitable to particular complaints, but such air as, being pure and temperate, will preserve the health of the individual resident. This, so far as ground is concerned, is not an inconsiderable thing, there being a continual evaporation arising from it, and that will most naturally be found where the soil is loamy, and under which is a bed of gravel. Where there are lava and limestone beneath the earth, the air in winter is generally warm, arising from the gaseous and calcareous caloric of the stone; but in summer it is here oppressive. Granite rock does not produce the same effect; it is also of a less reflecting quality where it appears above ground, and the air is here more salubrious. All smooth marble-stones as well as metals reflect the sun's rays which fall on them, whereas more porous substances, such as freestones and bricks, absorb the rays to a great degree.*

Further, the earth still demands greater investigaton, namely, as to its richness and fertility; these are of the most immediate concern both as relates to profit and beauty of scenes: a flower-garden, for instance, is a very essential appendage to a country-house, and a kitchen- and fruit-garden at some moderate distance. Both these should be on such earths or soils as will cause things planted in them to grow well; for this there is none so universally fertile as the loamy; it admits, as we have said, the rains and dews to penetrate freely to the roots of the plants, and detains them there a sufficient time without injury. We see by observations in nature's wildest state, many instances of the general excellencies of this kind of earth; though there are some plants that thrive best in clayey soil, while others will not grow on sandy light earth; and there are some again that delight in sandy earth, and will not live in clays, and so on, *vice versâ*. Thus the rural poet remarks,

> "Not every soil each varying race supplies,
> Willows by streams, in marshes alders rise,
> Wild ashes wave bleak promontories o'er,
> Gay myrtles blossom on the sea-beat shore,
> Along the sunny uplands vineyards glow,
> And yews ascend where freezing north winds blow."
>
> VIRGIL'S *Georgics*, II.

But both kinds will grow in a loamy earth; indeed, there is no kind of plant that will not thrive here unless it is aquatic. This fertility of the earth must not be confined exactly to the ground adjoining the house, but extend to all the estate or domain, as it is this which gives it a rich and verdant prospect. There is a cheerfulness and beautiful appearance in a fine upland woody country, particularly when it is bold and undulating, which is seldom to be found in the poor or barren, and hence in proportion to the goodness of the earth is generally the beauty of the face of nature.

* To afford warmth to plants growing in the earth is of considerable importance, and the power of accumulating and retaining it varies as much in soils as the proportions of their constituents. A rich black mould, containing one-fourth of vegetable matter, has been found to have increased in its temperature in an hour from sixty-five to eighty-eight degrees by exposure to sunshine, while a chalk soil was heated only to sixty-nine degrees under similar circumstances; but the first, when removed into the shade, cooled in half an hour fifteen degrees, whereas the latter lost only four degrees. This explains why the crops on light-coloured tenacious soils are in general so much more backward in spring, but are retained longer in verdure during autumn than those on black light soils; the latter attain a general warmth more readily, but part with it with equal speed. The following experiment, which has been successfully repeated upon light as well as tenacious soils, demonstrates how greatly the colour of a soil influences the accumulation of heat. Coal-ashes were sprinkled over half of the surface of beds sown with peas, beans, &c., and in these the plants invariably appeared above ground two or three days earlier, obviously on account of the increased warmth, it being a well-known fact that dark-coloured bodies absorb caloric more readily and in larger proportions than those of a light hue.—(Sir Humphry Davy.) Even a garden-wall that is coloured black will attract more heat than one that is white.—(A.)

In hot soils vegetables are hard and strong, but not prolific; in moist ones luxuriant and prolific, but neither strong nor hard. A good soil yields the most abundant harvest. In bad ones fruits have a purer juice, bees yield a better honey, game of a more delicious flavour, and wild-fowl more delicate and wholesome.—(Spectacle de la Nature.)

The above character so certainly and perfectly accompanies the excellence of ground, that before it is opened for examination of its qualities, it may be known by the aspect or the growth of trees and the herbage. Where trees grow straight and beautiful, with freeness from moss, clearness of bark, and luxuriant in foliage, the earth is always excellent, for where it is faulty in quality or shallowness, it will be equally seen by the herbage on its crust, which will be poor, in spite of all the labour and expense that may be bestowed upon it, and the trees will likewise grow irregular and become stunted, and have the appearance of decay, though there may be other causes.*

After these observations, we would have the architect, when he is about to select a spot or situation for a house, to take into his most serious consideration the nature of the soil and subsoil; and the character of the surface should be one of his first objects of examination, with all the advantages of nature in the fullest extent, both as to its salubrity and fertility, as well as its diversified scenery of undulating hill, winding dale, wood, and water. However, he must not always expect that in any one place he will find all these combined in their most full perfection; but knowing what these perfections are and what is required, he will be the better able to judge how far an excellence in one kind will make an amends for a deficiency or imperfection in another, and how far the objectionable part is capable of being improved, if not perfected.

DISSERTATION VI.

A CURSORY VIEW OF GEOLOGY, IN REFERENCE TO THE ORIGIN, NATURE, QUALITIES, AND DURABILITY OF VARIOUS STONES USED IN BUILDING.

"To form an idea of the position of the different kinds of rocks which lie on each other below the crust of the earth, let a number of leaves of paper of several different colours be pasted one upon another; then bending them up together into a ridge in the middle, conceive this ridge to be again reduced to a level surface by a plane passing through the leaves so as to cut off all the parts that had been raised. Again, let the middle be elevated, and this would be a good general representation of most of the layers, if not all the large tracts of mountainous countries, together with the undulating parts adjacent. From this formation of our globe it will follow, that we ought to meet with the same kinds of earths, marls, and stones appearing at the surface in long narrow slips, and lying parallel to the greatest rise of any large ridge of mountain throughout the world, and so, in fact, we find them."—MITCHELL.

Having described the nature and qualities of the vegetative earth necessary for the growth of trees, herbage for cattle, the fruits for man, and the connected substrata essential to support the mansion, we shall now give a geological analysis of the formation, position, and qualities of different rocks in the earth, proceeding in an ascending order from the granite or primitive rock; noticing the leading character and peculiar quality of each group; and, lastly, treating on the durability of the different kinds of stone used in building, with a knowledge of which it is of the utmost importance and consequence, both to the employer and the architect, to be well acquainted; for

* In the southern parts of Devonshire, near the sea-coast, where the land is good, the trees are much cut on the western side by the winds that blow from that quarter, which is supposed to be occasioned by its long passage over the Atlantic Ocean, bringing with it the insinuating particles of the sea-air: the cause of this is not for our inquiry, but it has been a subject for curious investigation among natural philosophers in almost all ages, but still remains in great obscurity. There can be little doubt, however, that a large quantity of saline matter existed in this globe from the creation; and at this day we find immense beds of rock or common salt buried in the earth: but whether these collections have been derived from the ocean, and deposited in consequence of the evaporation of its waters, in certain circumstances, or whether the ocean was itself originally fresh, and received its salt from collections of saline matter situated at its bottom, or from that brought from the influx of rivers, cannot now be ascertained; but the sea has been found to vary in degrees of saltness at different parts of the world, and at different depths of the water. However, where it is most hot, there it is most salt.—(Watson's Chemical Essays.)

however beautiful a structure may be, if built with a fragile stone it will have to boast its beauty but a little while. Now durability was what both the ancient architects of Egypt, Greece, and Rome always aimed at in their works, and thus many of their edifices which still exist we find are constructed of the most durable materials; hence they have stood the storms of war, the tempest of the elements, and the corroding hand of time, and still bid fair to endure (unless doomed by fanaticism to destruction) until the general annihilation of all things,* when

> "The gorgeous palaces, the solemn temples,
> Yea even the great globe itself,
> And all that it inhabit shall dissolve,
> And, like the baseless fabric of a vision,
> Leave not a wreck behind."—SHAKSPEARE.

What the form or surface of our terrestrial globe originally was is beyond the power of human intellect to divine; but this not being important to our purpose, we shall at once proceed to observe, that the globe being formed by the Almighty fiat of Jehovah, and land and water separated,† it is supposed there were at this time certain rocks formed; that they were of one particular kind and in compact masses, deposited in certain parts of the world, and situated as deep in the earth as man has ever yet been able to penetrate. These primitive rocks have been found to be that of the granite kind, but varying in texture according to their compounds at different parts of the globe. This is called the primary formation.‡ Now since the earth's first formation it has evidently, whatever it might have been, undergone a great change, and produced secondary rocks of a stratified nature. These secondary stratified or transition rocks (as they are sometimes called,) comprehend a great variety of different beds of stone, extending from the primary strata upwards to the chalk, which forms the upper or most recent member of the division. As to their origin and the nature of their formation, it is supposed by the action of the elements on the primitive rocks their tops would decompose, and the débris, by the repeated rains, be then washed down into the hollows below, which, being there deposited, and mixed with shells and other matter, producing a thick mud, would ulti-

* The Egyptian Memnon, formed of porphyritic granite, is as perfect as ever. The Parthenon at Athens, above two thousand two hundred years old, built of Pentilican marble, still stands, and though stripped and mutilated, shows no symptoms of decay. And the huge rotundical Coliseum at Rome, whose dimensions are six hundred and air afterwards assumed their respective fifteen feet long, five hundred and ten broad, and one hundred and fifty-seven high, built by Vespasian in the first century, yet rears its stupendous and staged columnar front in the air.—(R. B.)

† Burnet's theory of the earth was at one time considered an interesting conjecture, but like that of Buffon, it will not now bear the test of scrutiny. Burnet imagined that when the elements separated from the original fluid mass, the heaviest particles tending to a centre constituted a nucleus, upon which water and stations. The air, however, was not as we now see it, a transparent attenuated medium, but it was loaded with exhalations and impurities, which it gradually let fall upon the surface of the waters, and then floated upon the whole in cloudless serenity. The deposited matter constituting a rich crust, sent forth its vegetable productions, and soon became clothed with uninterrupted verdure: everything was smooth, soft, and regular, and there was, he supposes, a universal spring, for the plane of the ecliptic was coincident with that of the equator. In process of time, however, the green and even surface now described, began to suffer from the continuous action of the sun's rays, which formed cracks and fissures, that ultimately extended to the abyss of waters beneath, and these being sent forth by elastic vapours expanded by heat, soon inundated the superficies; an universal deluge ensued, and on the violent shocks and concussions that attended it, rocks and mountains, all the irregularities of the present surface, had their origin; then the water gradually subsided into the residuary cavities, forming the ocean, and partly were absorbed into the crevices of the disjointed strata and nucleus; vegetation began to reappear, and the once uninterrupted and uniform surface was now broken up into islands, continents, mountains, and valleys.—(Burnet's Theory of the Earth.)

It is very probable, says a more consistent writer, (Camden,) that the face of our globe underwent an alteration from the waters of the Deluge and other causes; that some mountains were thrown up, and many higher places sunk into plains and valleys; that bodies of water were dried up; dry ground became pools of stagnant water; and that some islands were torn from the continent, as appears by comparing Dover cliffs with those of Calais.—(See also Cuvier's Theory.)

‡ Geologists agree that there are certain rocks more ancient than others.—(Lyell's Elements of Geology.)

mately, through the agency of heat evaporating the water, become clay, and finally converted into stone, hence producing this second class of rocks.*

But then these rocks having been formed in horizontal beds, they must have since been acted upon by some powerful volcanic agent from below, by which perhaps they were first softened, and then thrust upwards, to produce the disorder and stratified veins, which give them the various inclinations they now possess. As to the formation of mountains and valleys, when the Deluge took place the earth became immerged in its waters, being "covered with the deep as with a garment," which on retiring would naturally cause mountains to be formed and valleys to be channelled, in whose sides and cavities evidently various diluvial deposits would take place, and thus other rocks of various kinds might be formed, of different compounds and strata, produced from the convulsion and currents of the floods of waters in their winding passages through the earth, until they finally emerged into the ocean.†

Those stratified diluvian rocks are therefore found to be made up, some of compact clay and pebbles, others composed of clay, pebbles, and small round shells, with various mineral substances; and a third composition of rocks contains a conglomeration of clay, marl, pebbles, marine shells, and bones and teeth of a multitude of animals of various species now entirely extinct.‡ Thus we find there are certain principal groups of petrified substances conglomerated with clay, forming rocks reducible into regular beds, all distinguished by marked peculiar characters, and descending to the primitive rock as a basis. They are as follows:

The Chalk group.
The Oolite (Freestone) group.
The Red Sandstone (red Marl) group.
The Limestone (transition) group.§
The Old Red Sandstone (Conglomerate) group.
The Graywacke Slate group.
The Clay Slate group.
The Granite group.‖

Now seeing the durability of stones employed in a building must necessarily depend on the chemical compound nature of which those stones are formed, we shall thus describe the leading characters and quality of each group, proceeding in an ascending order from that of the granite or primitive rocks.¶

The present surface of our globe is composed of lapideous materials, the nature and composition of which it is the business of mineralogy and of chemistry to determine; not that the minutiæ of either of those studies need of necessity be gone into, either by the practical geologist or by the architect. Though the substances which present themselves are comparatively few in number and

* From the dropping waters of the rock at Knaresborough in Yorkshire, and the petrifying well at Matlock in Derbyshire, various substances have been converted into stone. At Arcueil, about three miles from Paris, there is a spring of water which has the property of converting fruit into stone incrustations.—(R. B.)

† If this be not the case with the flood, how comes it to pass that marine shells are discovered buried in the earth on the tops of the mountains and at midway, and also various layers of clay deposited there, which had once been in a liquid state, but now become compact stone, and found at various depths in the earth?—(B.) The solution of the difficulty to some has been founded upon the supposition that certain powerful agents have elevated our present continents, and at the same time depressed the land of the ocean; what was once therefore the bottom of our antediluvian sea, now appears to be our habitable land, and perhaps the dry land of a very remote period of the world may be the bottom of the present sea.—(Brande.)

‡ See Dr. Buckland's Lectures.

§ The British marbles belong to this class.

‖ The porphyry verde-antique statuary, and some other foreign marbles, are connected with this primitive class, which we shall describe under the article chimney-pieces.—(R. B.)

¶ Not the least important fact in the history of rocks is their gradual, and often insensible, transition, as it were, into each other downwards; for it furnishes us with a strong argument against many of those speculations into which geologists have entered respecting their original formation. The gradual migration of chalk into clays and sandstone, and of those into oolite deposits, of oolite into lias, and of this again into limestone, is visible in many hard specimens; and there are equally well-marked instances of the transition of clay-slate into red sandstone on the one hand, and on the other into mountain-limestone.—(Brande's Geology, p. 123.)

at the same time simple in their nature, as well as their external character and intimate composition, which are consequently soon known. Thus silicious, calcareous, and argillaceous substances, either pure or nearly so, and in a state of mixture, or loosely and indefinitely blended rather than in strict chemical combination, constitute a very large relative proportion of those rocky masses, scattered or comminuted substances, which form, or have formed, the most extensive constituents of our globe. Now the granite is considered to be the primary rock, although surrounded with others of a primitive nature; that is, such rocks which do not contain diluvian, organic, or volcanic substances, such is that of the clay roofing-slate, the Egyptian red porphyry, statuary, and some other foreign marbles, which are supposed to be a second formation. Granite is also regarded as the primary or original rock, because it is found to be the lowest in the earth, and upon it all other rocks are found to rest, while in some places it is observed to have pierced through the superincumbent substances, forming exposed peaks, and the loftiest summits of the principal mountain-chains in the world.*

We shall first treat of the granite as to its compound nature; secondly, as to its durability; and thirdly, its appropriateness to building. In substance the three component parts of granite are quartz, felspar, and mica,† distinctly or confusedly blended together. The varieties of granite arise solely from the loss of one or other of these ingredients, or from the addition of some other mineral, which is by no means uncommon. The character of granite, therefore, depends much upon the perfection or prevalence of one or other of these three ingredients. Their aggregation in the crystalline form is in some specimens distinct and well defined; in others, imperfect, forming what are usually called fine- and coarse-grained granite; the latter where large crystals of felspar sometimes prevail.‡

As the counties of Devonshire and Cornwall are the most celebrated for this kind of stone, (particularly the former,) we shall confine our examination and remarks on this group chiefly to these two districts. Now, generally speaking, there are two very decided varieties of granite to be met with here. The grey and the red, which last accords with the colour of the felspar which is the predominating constituent.§

Both varieties generally contain black mica, and when the mica is wanting in either, it is commonly replaced by schorl. When worked for the purpose of building, the blocks are readily cleft by a wedge, and the smaller ones thus obtained are shaped to the intended forms by the use of

* The highest mountains in Britain are composed of granite and its associates; but these are mere trifling protuberances upon the earth's face when compared with the exceeding heights of the Alpine chain, or the yet more elevated mountains of South America, and of the Asiatic continent, which consist of the same materials. Ben Nevis, the loftiest of the British mountains, is situated in the south of Inverness-shire, and is four thousand three hundred and seventy feet high. Cairngorum, in the same county, is four thousand and fifty feet high, and Mont Blanc, in Switzerland, has its peak elevated fifteen thousand six hundred feet above the level of the ocean: it is the highest mountain in Europe.—(Brande's Journal.)

† Quartz occurs crystallized or massive; felspar crystallized and compact, having a foliated structure and an uneven fracture. Mica foliated and crystallized, soft, and easily scratched with a knife.—(De la Beche's Geology.)

‡ The stones in the carriage-way, and the kerb-stones of the foot-pavements in London, are of granite; the former mostly from Aberdeen and Dundee in Scotland, the latter from Devonshire and Cornwall. In those kerb-stones the crystals of felspar (particularly after rain) may be seen protruding above the surface, and from these the leading lines of the granite are destroyed. Or where mica abounds, the rock acquires a lamellar and slaty fracture, and is then called gneiss: where the felspar is very sparingly disseminated, or otherwise wanting, or where garnets supply its place, granite is said to pass into mica-slate, and this again into quartz-rock, by the partial or entire disappearance of the mica.—(B.)

§ Red granite is so called when the felspar predominates, which is of a red colour. It is common in Scotland, and the cathedral on the island of Icolmkill is built with it. Some have named it porphyritic granite.—(B.) At Troulsworthy, in the parish of Shaugh, in Devonshire, through an extent of about fifty acres, a very fine red variety occurs, much resembling some kinds of Egyptian granite. This admits of an exquisite polish, as may be seen in tables formed of it at Saltram-house, the seat of the Earl of Morley, Mount Edgecombe, and in the chimneypieces made of it at the Duke of Bedford's cottage at Endsleigh, in Devonshire.—(B.)

a heavy, pointed hammer or pick. It is worked in this manner when newly detached from the rock with considerable facility, but upon exposure to the atmosphere it becomes extremely hard.* The granite on the high hills or Tors on the borders of Dartmoor, frequently seem harder in those places, and also of clearer texture. Hey-Tor, Sheeps-Tor, Collard-Tor, and Pen-Beacon-Hill all verify this remark. The two noted elevations of mountain-granite on Dartmoor are known by the name of Heigh-Tor Rocks, which are peculiarly bold and massive in their character, and rise to nearly one thousand six hundred feet above the level of the sea; and their summits afford one of the finest panoramic views in the county of Devonshire. Those quarries have obtained a high repute amongst architects and engineers for the size, durability, and fineness of the texture of the blocks produced from them. Two or three hundred men are usually employed here, a great portion of the stone being worked to the required sizes, form, and shape on the spot: it is then conveyed to the Storer canal by means of a railway of seven or eight miles in length, formed of the same materials, which winds down between the neighbouring hills and crosses Bovey Heath, joining the canal-head at Ventiford, whence it is conveyed to the new wharf at Teignmouth, and then shipped to the extent of several thousand tons annually, chiefly to the metropolis.

Exclusive of Devonshire and Cornwall, there is little granite in England. The Malvern Hills, Mount Sorrel in Leicestershire, Moss-dale, and a few of the ridges in Cumberland and Westmoreland afford us specimens of this rock. In the granite district of Cornwall there is nowhere any considerable elevation; its highest part is the hill called Brown Willey, near Bodmin, which is about one thousand three hundred and sixty feet above the ocean's level. Dartmoor appears to be the principal depôt; a dreary mountainous-tract of land, extending over one hundred and thirty thousand acres, or one hundred and fifty square miles.† This dreary abode, the subject of a beautiful descriptive poem by the late P. Carrington, of Devonport, was once the great seat of the Druids, but is now become a land of desolation, strewed over with large masses and groups of granite, many of which appear to have been torn from their native rocks by piecemeal, and flung over the heathy hills, setting all cultivation here at defiance.‡

Some varieties of granite are soft and yielding, while others are extremely hard and permanent in their mountain-masses, and which seem almost imperishable. If we consider them in respect to their uses in the arts, and witness the mighty remains of the Egyptian sculptures, executed in this hard and durable material, or look at the high state of preservation which some ancient temples of a very remote date present, they still stand nearly as perfect as ever, amidst the ruined fragments and dust of contemporary edifices around them, constructed of less enduring kinds of stone. As a material for buildings, granite stands unrivalled, particularly for the basement-story of public edifices, and for which it has lately been used in the King's Library, at the British Museum, and is now using for the subbasement of the new House of Commons. Waterloo Bridge,

* All stones work with greater ease when first taken out of the quarry, and equally become hard when exposed to the sun and the air, probably in consequence of the escape of water previously existing in its pores or interstices.—(B.)

† From a survey made some years since by order of the House of Commons.—(B.)

‡ Those persons who have visited any granite country, will not fail to recognize in the scenery of Mucklestone Moor and its vicinity, as described in that exquisite *petite romance* called "The Black Dwarf," a most accurate representation of the appearances and objects which such a country exhibits. The remote and inaccessible recesses which sheltered the deer pursued by Hobbie Elliot, the cleugh or wild ravine into which that undaunted borderer followed the game, the extensive waste or moor, interspersed with marshes and pools of water, over which he returned, the deep purple of the broad outline of heathy mountains which surrounded this desolate spot, are all characters or accompaniments of a district occupied by this rock. The description of scenery in the Black Dwarf must have been drawn, we presume, from the granite moors of Scotland; but we find in their affinity to those in the west of England an evidence of the marked and obvious distinctions of primary districts wherever they occur, and of the influence of the geological structure of a country on the character of its scenery.—(B.)

and the new London Bridge, both furnish splendid examples of the suitableness of granite for that purpose, of which they are both constructed, no less than the grand simplicity of the designs, and the perfection of the execution, which unite to constitute them fit and durable public memorials of the genius and skill of Mr. Rennie, the architect and engineer.

Though granite, as we have observed, is in general a very durable stone, yet let the architect remember we have said there are varieties of granite produced arising from the loss of one or other of the three compounds which we at first described, or from the addition of some other mineral, a circumstance not unfrequent; and that such granite is therefore subject to decomposition and to moulder down, and that with no inconsiderable rapidity.* We have therefore shown how he is to judge of its quality. The decay of granite may further be considered, in relation to its mountain-masses, as effected in various ways, depending upon the structure and composition of the rock. In Cornwall, for example, where the granite is not so excellent as that of Devonshire, there are large groups of granite so soft and yielding that it may be cut asunder with the axe, or rubbed to powder between the fingers, and the grains of quartz and mica may be separated from the pulverulent felspar, which is the ingredient that undergoes decomposition, and forms a fine white powder, which is worked out of the rock by the rains and streams that percolate the district. A very striking assemblage of these decomposing granite hills is presented to our view in an excavation of Carglaire tin-mine. The veins of ore are harder than the rock itself, and easily traced upon its rapidly-decaying surface; and every rill of water that traverses the rock is loaded with that finely divided felspar so abundantly deposited in all the low lands of the neighbourhood, and largely exported under the name of Cornish porcelain-clay.

In an ascending order, the next rock that demands our attention is the great clay-slate formation, which is next in abundance to granite; used for covering the roofs of houses, and which we shall have occasion to mention again more particularly under the article, 'Different Coverings for Roofs.'† This roof-slate may, without any inconsistency, be referred to the great clay-slate formation, of which in England we have abundant instances, especially in the northern and western parts, and which constitute the greater portion of the mountainous districts of North Wales. In Devonshire and in Cornwall it reaches from Dartmoor to the Land's-end, lying on the back of the granite. All the magnificent scenery of Falmouth, Fowey, Loo, Tintagel, and other places upon the north as well as the south side of Cornwall, derives its grandeur and charms from the various assemblages of slaty headlands and promontories. There are however, in several parts of Cornwall, but more especially about the neck of the Lizard promontory, even rocks which are slaty in their composition and slaty in their exterior, but which, from the fragments and particles distinctly embedded in the main mass, are legitimately allied to the enigmatical family of the graywackes, while the slate at Tintagel is a distinct, unadulterated, and admirably well-defined clay-slate.‡ The goodness of slate is known by

* De Luc informs us of the marble granite of the Hercynian forest; and Saussure describes the mouldering down of the Alps; and we have the like examples on Dartmoor, in Devonshire.—(B.)

† Some slates are found to contain abundant minute specimens of minerals and metals, which soon cause them to variegate in colours and tints, after being laid on the roofs; some speckles becoming yellow, some grey, and others drab. But it is rather doubtful whether any ever contained organic remains, though impressions of some bivalve shells are said to have been found in it. I am however rather inclined to believe that all these impressions and mineral substances are either in graywacke-slate, or in that which borders upon and passes into limestone, and that genuine clay-slate is destitute of shells; a fact which appears opposed to its imaginary aqueous origin, and which has given rise to the presumption, that the ocean was inhabited by living beings at the time that this great deposit was produced.—(Brande's Outlines.)

‡ The Dennybole quarry at Tintagel, in Cornwall, produces the finest and best slates in England: surpassed by the Welsh for durability. They divide more equally and uniform in the thicknesses, besides being of a better texture and quite uniform in colour. Mill-hill quarry, near Tavistock, produces excellent slate for roof-covering; and that of Cann quarry, at Borringdon, in Devonshire, is exceedingly good. This quarry is in the midst of an umbrageous wood, and a deep and

its glimmering surface, approaching to that of talc, clearness and uniformity of colour, and freeness from magnesian minerals. Those slates which sound well when struck on a block of wood, that break solid and absorb the least quantity of water when immerged in a vessel, are to be preferred. If water penetrate through, such are decidedly bad. Those on the top of the rock, which are generally of a dusky yellow, are in a state of decomposition, and should therefore be rejected.*

Associated with the foregoing rock, and next in order of succession, is the *graywacke*-slate, a German name for the principal rock among the lowest members of the second series, found lying upon the second primary rock. Graywacke-stone is considered to be the first mechanical deposit.† It is an aggregate cemented by ferruginous clay,‡ and is composed from the debris of the primitive rocks. It is sometimes found to form the crust of the roof-slating; it is a schist, and varies in texture: it is also laminated. The colours are various in their different rocks, such as a dun grey, a pale buff, and ferruginous brown. This group occurs extensively in the hilly counties of the south of Scotland, in Cornwall, and Devonshire, where in some parishes, particularly that of Berry-Pomeroy near Totnes, and Tamarton Folliet near Roborough Down, it is the chief building-stone; but it cannot be said to be so durable a material as that of the less stratified and other solid compact stones.§

Old red sandstone. This group is situated upon the lowest secondary rocks, which appear to give it a title to that term. Ranges of this stone are sometimes seen following those of the primitive rocks, where it is evidently composed of their debris. It is characterized by its containing a great number of beds, composed of water-worn fragments, and red sandstone layers of a fine grain, and its being usually of a light red colour, which, like many other rocks, it derives from oxide of iron. It is the principal rock in Herefordshire, but not of very great extent in other English counties, except Somersetshire and Devonshire.‖ It is estimated to be in England about one thousand five hundred feet thick. The rock about Exeter, where there is a quarry at Heavitree, is strictly of the conglomerate formation.¶

sombre river passes silently by its side, the whole presenting a very romantic and sylvan scene. The slate-quarry at Larybridge produces large paving-stones for kitchens, larders, dairies, &c.—(Brayley's Geology.)

* The simple varieties of roof-slating are formed of a peculiar indurate clay, while the coarser or compound kinds contain in addition quartz and mica; and sometimes, perhaps more frequently than is generally supposed, the mineral called chlorite. Its schistose or slaty texture allows of its division into thin laminæ, which in general have a shining surface, and sometimes a more or less silky aspect. The cross-fracture or surface exposed by breaking the rock in the direction across that of the laminæ, is dull and fine-grained, or in some degree earthy: it often possesses the aspect of plates of chlorite, of which the larger planes are disposed with sufficient regularity to impart fissibility. Sometimes this slate has a soapy feel, arising probably from an admixture of talc with the indurated clay forming the basis of the rock. Its colours are bluish-grey, greenish-grey, and reddish-brown.—(Phillips and Conybeare's Outlines of Mineralogy and Geology, edit. 1826, p. 153.)

† There are two deposits, the mechanical and the chemical: the first is a substance entirely formed from the debris of other substances. It may be compared to a compact sandbank, thrown up from the depths of the sea and deposited on its shores.—(Lyell's Elements of Geology.)

‡ Clay belongs to every formation, being the natural result of the argillaceous substances when decomposed.—(A.)

§ We must, however, resort to Cumberland for illustrative specimens of this rock, and to the scenery of the Westmoreland lakes for a notion of its mountain-aspects, of which Skiddaw forms the highest elevation. There is something that is exquisitely beautiful in the mountains that environ the southern extremity of Derwentwater: their form, tints, and general association and outline are perfectly peculiar, that belong to a true slaty texture. They show a union of softness and grandeur which marks them as a distinct formation; and if there be a difficulty, which there often is, in deciding respecting hard specimens, graywacke-slate may in general soon be recognized where the form of its hills can be traced.—(Brande.)

‖ The old red sandstone, as it occurs in Devonshire, is best exhibited in the neighbourhood of Torquay and Teignmouth. At Cockington, between Torquay and Paignton, are two quarries of chocolate-coloured micaceous, silicious, and very compact sandstone. In both a slaty variety, splitting easily in the line of the laminæ, which are filled with mica, is mixed with compact and micaceous beds. In its great hardness, in its colour, in being micaceous, and in general appearance it differs entirely from the red sandstone associated with the Exeter conglomerate. The old red sandstone passes into graywacke in the high hills north-north-west of Paignton.—(B.)

¶ The quarry at Heavitree is situated about a mile and a half from Exeter, on the road to Honiton. It is worked to

It is not an enduring stone when exposed to the watery element, where the rain is allowed to penetrate between the joints; neither is it good for foundations; but I should recommend it for inside walling, to be used in conjunction with limestone, being better calculated for sustaining the plastering; besides, limestone walls internally attract and throw out the wet after every rain for years afterwards, whereas the old red sandstone and the conglomerate absorb the moisture.

Limestone is the next in order of ascent: of this compound we have two separate deposits. The primitive, or marble, when crystallized appears fine and granular, as the dolomite and varieties of statuary marble. It is also a compact stone, as the limestone from Tiree, where it occurs of a beautiful flesh-red colour, with selenite and titanium imbedded. It always effervesces with muriatic acid, and easily yields to the knife.* Another variety from Scotland has a clouded, dull green colour: it is of close texture, granular, and receives a high polish: it is often called Athol marble. At Galway, in Ireland, there is a marble of the same kind, hard, and of a more beautiful and brighter varied green even than the verde-antique.

Secondary limestone generally is considered to be that which is associated with other rocks of the same formation, connected with those of the primitive order.† This limestone is a deposit more mechanical than chemical, and scarcely can be called granular: its texture is fine, and its colour very variable, and frequently strongly contrasted, as red, black, white, yellow, blue, &c. It is abundant in Devonshire, both at Plymouth and Torbay, where it exhibits marks of stratification. Some of these varieties, when cut into slabs and polished, are very beautiful, as may be seen in the foot-pavement in the towns of Plymouth and Devonport, which are laid with it.‡ In the north of Devon-

the extent of a quarter of a mile in length, and at present to the depth of about ninety or a hundred feet, in a plane intersecting the strata. The rock worked in this quarry is a conglomerate, chiefly of red loamy clay and gravel, and is stratified: it is compact and tenacious, and hardens more and more by exposure to the air. But as soon as it passes to the state of an arenaceous sandstone, or is constantly exposed to the rain, if it penetrates at any fissures, it frequently becomes tender and friable. It is very common to see blocks of it in this last state, and sometimes of great size. The cement of this rock is argillo-ferruginosa. The substances which enter into the composition of this conglomerate in some parts are numerous, and it may first be remarked, that these substances are of very different sizes and forms, extending from very minute grains to the size of half an inch in diameter. There are found in it rhomboidal crystals of calcareous spar, and crystals of felspar, most frequently of an opaque white, and decomposed pieces of flint (chert), and of yellow limestone, with masses of a species of porphyry, somewhat resembling the antique; the base of which is of a reddish brown colour; and some pieces of rock, which is itself compounded, having the appearance of porphyry: the base is earthy, and includes small grains of quartz, crystals of felspar, and pieces of bluish carbonate of lime.—(R. B.)

* To ascertain whether a stone is calcareous, or of the limestone kind, pour a little muriatic acid upon it, and if it effervesces it is calcareous or limy: another quality is also essential; that is, that it receives a polish.—(B.)

† Limestone is a deposit, and in its compound is formed of clay crossed by veins of calcareous spar, quartz crystals, and manganese; and it is in many parts characterized by its abundant organic remains, more especially those of marine animals, such as corallites and encrini, madreporites, trochites, entrochites, encrinites, orthoceratites, and serpulæ; and shells, both univalves and bivalves, are blended with and form a very considerable part of the contents of the calcareous rocks. At Plymouth these organic remains are more distinctly visible, and abound most at those points of the rock where the variegated limestone, the black, and the clay-slate alternate with each other previous to their entire separation, and to their respective course; which may be seen near Lary-Bridge, where these three quarries follow each other.—(B.) The number or zoophytes, which form the lowest class of the animal kingdom, bears a very large proportion to that of the shells. The Plymouth limestone must therefore be considered as one of the earliest deposits containing organic remains.—(Hennock, Proceedings of the Geological Society, No. xiv. p. 169.)

The black variety of limestone-marble, of which there is some in the quarry at Oreston, near Plymouth, is sometimes known under the name of Lucullite, given to it in consequence of the admiration bestowed upon it by Lucius Lucullus.—(Vide Plinii Hist. Nat. 368.)

‡ The colour of the Plymouth limestone varies considerably, although the principal one is a light-blue grey, changing at times into a much darker shade, or becoming nearly black. These tints again are frequently intermixed and marbled with an indefinite variety of reds and other colours, as if stained by the oxidation of all the metals. This variation, joined to its susceptibility of receiving a very high polish from its hard and close-grained nature, renders it of some consequence to the stonemason, and to the public in the production of chimneypieces and slabs for tables, many of which require only to be seen to be much and deservedly admired. The foot-pavements, as we have observed, in the towns of Plymouth, Stonehouse, and Devonport, are composed of blocks taken from the quarries of the limestone of those places, and which, after a shower of rain, present most striking specimens of marble, variously marked with veins of different colours and beautiful shades.—(R. B.)

shire, near Castle-hill, this variety of limestone occurs, filling large cavities in graywacke-slate. It contains many sparry white veins, abundance of pyrites, and sometimes lead ore. Fossil petrifactions occur, but not of the same description, nor in any degree so abundant as in the limestone of the more recent formation.

There are two supposed to be marked and distinct formations of limestone in Devonshire, both in texture and position: the eastern is considered to be the oldest and the western the newest deposit. That of Torbay belongs to the mountain, or carboniferous series; while that of Plymouth, in appearance, is a more crystalline stone. The limestone at Babbicombe occurs in beds; the colours are very various, but the usual colour is grey, varying in intensity. These rocks are frequently traversed by calcareous veins; and the stone varying in texture from compact to semi-crystalline: the latter predominates in the vicinity of trap, and where the strata are much disturbed. The semi-crystalline limestones afford a great variety of beautiful tinted marble, though we consider that the limestone at Buckfastleigh, in the same county, possesses more beautiful and brilliant colours,—a stone which is not so well known nor so much employed for architectural purposes as it deserves to be.*

The limestone in the county of Derbyshire is very beautiful; and this district presents us with so many points of interest and importance, that much might be said upon it if our space would admit. Here the limestone is composed of four beds: the upper bed is in part bituminous, and contains nodules of chert, arranged nearly as flints in chalk. It contains entrochites and various shells: beneath it the rock contains beds of magnesian lime, and of silicious lime and dunstone; and towards its lowest parts are the beds of noted black marble, which receives a good polish, and is manufactured into various ornamental articles. The lowest limestone stratum in the Peak Forest is that which forms the Peak itself, and the Downs of Buxton and the Weaver hills, where there are several remarkable caverns, such as the Devil's-cave, Elden, and Pool's-hole, and many others. Here also we find at Castleton those various nodules and masses of fluor-spar, celebrated for the manufacture of vases, and a variety of other beautiful ornamental articles, as also that very singular mineral production called elastic bitumen. The cavern of Pool's-hole, two thousand and seven feet from the entrance, is singularly grotesque, and abounds in splendid stalactites and stalagmites, and here some of the Derbyshire waters acquire a petrifying power from carbonate of lime.†

The transition or stratified limestone is estimated to have a thickness of nine hundred feet, and forms many hilly, rocky, and mountainous districts of singularly picturesque and romantic scenery in Britain.‡ The charms of the valley of Matlock, of Dovedale, and, indeed, of much of the Derbyshire landscape situated in the limestone-glens, baffle all description: they have exercised the pencil of the painter and the pen of the poet: but all their addresses to the eye and to the imagination are cold and vapid contrasted with nature's works in these delightful spots.

* All the limestones are convertible, more or less, into a quicklime by being calcined; the operation of which is performed in a kiln with a strong red-hot fire: it then produces a cement for binding the stones of a building together. The limestone is of itself very durable, and has a good appearance where the stones are squared and evenly jointed together; but the objection to this stone in our opinion is its being many years, after being laid in a mass, before it gets perfectly dry; and of its attracting and throwing out the moisture after every rain that falls.—(R. B.)

† We have seen a composition for the imitation of various marbles, made by Mr. Smith, a builder, on Fore-street-hill at Exeter, which we consider, if not superior, is certainly equal to that of the Scagliola, it being formed first by decomposing certain natural stones by a certain process, and then by a chemical one and the agency of fire, recomposing them again to their natural consistency; but while in a state of absorption, the patentee infuses his colours, made from certain minerals, by which all the required varieties of marble are produced, and then applied to columns and all kinds of decorative architecture.—(Idem.)

‡ The celebrated mountain on which Christ delivered his first sermon (see Mathew, v.) is of limestone; in fact, this is the prevailing stone in all the mountains, not only in Palestine and Phœnicia, but in Syria, Asia Minor, and Greece.—(See Maundrell's Travels in the Holy Land.)

The New Red Sandstone, or red marl group, next demands our attention: it consists of a number of beds of a red marly sandstone, often variegated by stripes and patches of white, blue, and grey, which occupy a great extent of country in England: there is an almost uninterrupted line of it from Hartlepool, in the county of Durham, to Exeter; and it covers the greater part of Nottinghamshire, Warwickshire, Staffordshire, Shropshire, Worcestershire, and Cheshire. This group is estimated at no less than two thousand one hundred feet in thickness. The texture of the new red sandstone is very various: it is sometimes soft and clayey, but in parts much more lapideous and indurated, and it is associated with beds of a peculiar conglomerate, consisting of nodules of different substances, cemented by marl, clay, and sand, and with particles of a rock, which we may describe under the name of amygdaloid. It is not in all places found fit for architectural purposes, as even from its softness it has been in some extensively excavated, particularly near Nottingham, where it is suspected that those caverns may have formed the dwellings of the original Britons.

Deposits of gypsum and sulphate of lime are very characteristic of red marl, and this is a substance of no small importance as an article of trade. The larger masses are occasionally manufactured, either in the turning-lathe or by hand, into vases and various ornaments; and this stone is sometimes found fit and used in decorative architecture, of which the columns in the hall of Kidleston-house, in Derbyshire, the seat of Lord Scarsdale, are fine specimens.* The red marl and new sandstone often vary from chocolate to salmon-colour; they are not unfrequently variegated, exhibiting streaks of light blue, or verdigris buff, or cream-colour. The sandstone itself of this formation consists of rather fine grains of quartz, with a few specks of mica, cemented together by clay and oxide of iron. It contains galls of clay, is friable, and affords large tracts of sand. The beds generally differ in colour as well as in compounds; though it rarely happens that any great variety of colour is seen in the same bed, yet at Axminster, between Exeter and Powderham, in Devonshire, where there is an excellent quarry of red marl, conglomerate is to be seen along the roadside, and near it layers of white sandstone, strangely and alternately mixed. The character of the sandstone is mostly derived from paste clay of mica, and generally rises in detached spots, not in regular layers. It occasionally passes into marly conglomerate, and though it is commonly unfit for architectural purposes, yet, in the quarries at Axminster, Kenn, and some others in this neighbourhood, of the conglomerate, marlstone kind, it possesses sufficient tenacity and hardness to be used for building walls, and thus has been extensively worked.†

The Oolite or Freestone group is the last series of stone in order.‡ This formation we find is extremely

* The texture of the new red sand- or marl-stone is very various; it sometimes appears as a reddish marl or clay, sometimes as a sandstone; sometimes the clay and sandstone are intersected or pass the one into the other: and it will further appear that it is associated with or contains beds of a conglomerate, consisting of masses of different particles of rocks in pebbles, sometimes by marl or by sand. Where this deposit appears as a sandstone its character differs greatly in different places: it is occasionally calcareous, and sometimes of a slaty texture. It is supposed by Mr. Conybeare, in his Outlines of Geology, that the red marl containing gypsum usually occupies the higher, the red sandstone the central, and the conglomerate the lower portion of this deposit: but the most remarkable of the subordinate beds connected with this formation are those of amygdaloidal trap, which occurs in it in Devonshire. The general composition of the beds of this formation are argillaceous, argillo-silicious, with a variable proportion of calcareous matter, sometimes effervescing weakly with acids, sometimes not all.—(B.)

† This stone has been selected and extensively used in the walls of the old Gothic parish churches and towers in Somersetshire and Devonshire during the middle ages.—(R. B.)

‡ It is called Oolite from the prevalence in it of a kind of limestone, composed of small round grains, like the eggs in the roe of a fish; whence oolite, from two Greek words signifying egg and stone. It contains about twelve alternations of subordinate beds, or rather systems of beds, consisting of limestones of different qualities and of clays, their united thickness being about two thousand six hundred feet, of which one thousand one hundred are formed by two beds of clay of five hundred and six hundred feet each. The small group contains a vast abundance of animal remains, which are almost exclusively marine, consisting of numerous genera and species of the molluscous animals, crustacea, insects, calcari, zoophytes, and skeletons of gigantic reptiles, analogous to the crocodile, combined in this petrifaction.—(Dr. Buckland.)

abundant, as well as the stone most generally used in England for building, on account of its handsome appearance, and being very easily worked and brought into the required form. It covers a great extent of country, stretching from Dorsetshire through Somersetshire to the banks of the Humber in Lincolnshire, and branching off to Lynn in Norfolk. Carbonate of lime and sand are its leading ingredients, though it contains diluvian matters. Most of its varieties are adopted as building materials; of such we may name the celebrated stones of Portland, Bath, Purbeck, and Beer Stone in Devonshire.*

Various quarries in Yorkshire are still more celebrated for freestone: that of Bramely-fall at Whitby is decidedly the best, which is of a cream-colour, and has been used in the new bridge in Hyde Park, by Mr. Rennie. The porous texture, however, of the freestone is such that it is easily acted upon by the weather, more particularly that of Bath, until it is hardened by the sun, and it is difficult to suggest any good criterion by which its relative durability may be decided on. It is sometimes supposed that a comparative estimate of its value and permanency may be founded upon its absorbent powers in regard to water; but this is not always strictly true; that stone which is formed of sand cemented together, and into the composition of which various shells enter, embedded as in the case of freestone, is certainly more or less durable, according to the quality of those shells being subject to decay.†

The Yorkshire flagging-stone has sometimes shales, by which the water enters, and there mixes with sandy particles which are blown into the crevices, till at last it causes the stones to split.‡ This stone has also veins of iron ore, which causes it to wear down unevenly, as may plainly be seen in the foot-pavements of the London streets. In the quarries in the Isle of Portland, three distinct strata are visible; the uppermost, called by the quarrymen the cap, consists of fragmented and decomposing masses:§ it is immediately succeeded by horizontal layers,‖ containing chert, (flints,) and some fine specimens of petrified substances: below it is the useful Portland stone. The chalk formation is too well known to need description, beyond that of its containing flints, and of its being burnt in kilns, and used for lime, in the metropolis and the counties adjoining.

ON THE CAUSES OF DECAY IN STONE.

The great agents which act and produce the decay in stone are those of water, and heat, and cold, which excite dilatations and contractions, thus keeping up a perpetual and varying motion among the particles upon which they act. Of such changes the sun is the grand source, to whose varying influence the earth, in its diurnal revolutions upon its axis, and in its annual circumvolutions through space, is always exposed. It may seem that the mere influence of change of temperature derived from the solar rays must be of little efficacy in disintegrating hard and solid substances. But when we reflect upon the very considerable transitions from heat to cold, and the reverse may ensue, and

* This last-named stone deserves to be better known for its excellent qualities. It is a fine close-grained freestone, well adapted for stone carving, either as fine ornaments or statuary figures: it equals that of the Caen-stone of Normandy, which was so extensively used in England during the Norman period.—(B.)

† At Great Barrington, in Gloucestershire, there is a quarry of freestone remarkable for its durability. It has been used for repairs in Westminster Abbey church, and for building Blenheim-house in Oxfordshire. To the reverse of this, we may name Mam-Tor, the loftiest of the eminences that surround the town of Castleton, in Derbyshire, which rises one thousand three hundred feet above the valley, and is regarded as one of the wonders of the Peak. It is composed of micaceous schist and slate, which, on being decomposed by the atmosphere, falls down the face of the Tor, and from this circumstance is called the Shivering Mountain.—(M.)

‡ The soundness or unsoundness of these stones may be known by a blow on their sides with a hammer.—(B.)

§ The stones from the tops of the quarries should always be rejected as unfit for building.—(B.)

‖ When the primary stones are taken out of the quarry, these beds should be marked with red chalk, and the grain so placed in the wall or other parts of the building; for if the side that was laid horizontal in the quarry be placed vertical in the wall or column, it will always be liable to split asunder.--(B.)

acting upon certain textures, may alone lend powerful aid to the general work of decay, we find that by the influence of what is conjoined with the varied agencies of water, the powers of destruction will not only be materially increased, but rendered in many instances rapid and irresistible.

Hence if we combine these abstract powers, as it were of water, with those which it derives from changes of temperature from heat to cold; in the frozen state its energies as a destructive agent become more rapid and irresistible.* Many substances of a spongy texture absorb it in considerable quantities, and the contractions and expansions which it suffers in their pores, tend to their rapid disintegration. This we see in the chalk and sandstone, in Bath† and Portland stone, and in several other materials, which are thus crumbled down and worn to dust, often with a surprising degree of celerity. Several of the public buildings of London furnish illustrations of this truth. Many of the modern structures in Oxford are already more decayed than their ancient neighbours constructed of less porous stone. And at Exeter, the Guildhall, built in 1593,‡ of a fragile sandstone, has its ornaments and architectural members entirely decayed and mouldered away, while the moorstone pillars which support the superstructure remain entire. In Henry the Seventh's chapel at Westminster, built of Bath-stone, as it appeared before the recent renovation, all the laboured sculpture and Gothic fretwork was worn and eaten away in the course of three hundred years, and now it has been modernised or restored at great expense in the very same perishable material. The columns, bases, plinths, cornices, balustrades, and other works of Bath-stone, with which Regent-street and the new buildings of the Regent's-park, London, have been decorated, are already in numerous instances, in only ten or twenty years, arrived at a frightful degree of decomposition; indeed, part of the columns of the park-lodges, near the Regent's-circus, have already fallen to dust: already are the columns of All Souls Church, Langham-place, frittering away; and the stone casing of the tower of the same church is flawed in many places.§ If any one be really unacquainted with the nature of the competition between the brilliant and admirable quarries of Portland roe-stone and the doleful ones of Bath, let him compare the superb masonry of the water-front of Somerset House, built about fifty years since, with that of the building at the opposite corner of Waterloo Bridge, built about fifteen years since, and which is a chosen specimen of its kind.

The author has been favoured by the contractors for building the new Houses of Parliament, Messrs. Grissell and Peto, with an account of the different kinds of stones chosen by the Government Commissioners as the most appropriate and durable for the purpose, which by a concatenation of circumstances, have been selected from the three united countries, England, Ireland, and Scotland.

* The powers of water in this respect are also truly gigantic upon certain rocks of laminated or flaky structure, which admit it into their crevices, where it freezes and thaws alternately, and thus gradually loosens enormous flakes and masses, which we may frequently perceive in the York flagging in the London streets after a hard frost. But with these mechanical agencies of water its chemical powers are frequently combined, and its solvent agencies are augmented, as far as certain rocks at least are concerned, by the absorption of carbonic acid, derived frequently from the atmosphere and frequently from subterraneous sources. Thus it is that the waters which traverse limestone districts are often so loaded with calcareous carbonate as to deposit it upon their banks and precipices in the form of tufa, or to petrify substances accidentally thrown into their streams or fountains; as we see in the petrifying well at Matlock, where these waters trickle through the ceilings and pervade the walls of those natural caverns in which limestone strata abound; they stud their sides with an infinity of brilliant crystalline deposits, and form depending stalactites that hang from the roof in a thousand fantastic forms.—(Architectus.)

† There are two quarries at Bath, the Farley Down and the Combe Down; but the latter is most used for ornamental architecture.

‡ Izacke's Memorials of Exeter, p. 320.

§ Where the Bath-stone is used, we would advise a coat or two of linseed oil to be passed over it; this will close the pores, harden the stone, and prevent the water from penetrating.

"Sir, *Lambeth, November 14th*, 1840.

"First, the foundation is laid with Penrynn granite from Cornwall, which rises to the level of the ground, therefore little seen. Secondly, above this is used the Fogg-Tor granite from Dartmoor, in Devonshire, (with which we are also building the Nelson pillar in Trafalgar-square, London;) then follow some courses of Irish granite from Dalkey near Dublin, of which many of the public edifices in that city are built. The whole sub-basement being then finished with the best blue fine-grained granite from Aberdeen, in Scotland, decidedly the most durable of any sent to London. The superstructure of the Houses of Parliament we are building with Bolsover moor-stone, from near Chesterfield, Derbyshire, an exceedingly fine-grained magnesian limestone, composed chiefly of carbonate of lime and carbonate of magnesia, semi-crystalline, of a warm, yellowish brown colour, well suited for Gothic work (Tudor architecture) on that account; carves well, and carries a fine arris, and from its peculiar clear texture will polish like marble.* Bolsover quarries are the property of Lord Bathurst and the Duke of Leeds.

"Yours very truly,
"T. Grissell."

DISSERTATION VII.

A CAUTION WHERE WE OUGHT NOT TO BUILD A HOUSE.

"He that builds a fair house upon an ill site committeth himself to prison. Neither do I reckon it an ill site only where the air is unwholesome, but likewise where the air is unequal; as you shall see many fine seats set upon a knap of ground environed with high hills round about it, whereby the heat of the sun is pent in and the wind gathereth as in troughs; so as you shall have, and that suddenly, as great diversity of heat and cold as if you dwelt in several places."—Lord Bacon's *Essays.*

Many places are objectionable on which to build a house, in consequence of their being unhealthy: such is that of Stow in the Would, in Gloucestershire, where it is said the inhabitants want fire, water, and earth.† Then it is evident that a house built within the proximity of marshes is particularly unhealthy from the vapours or mephitic air which infest the vicinity after nightfall:‡ such are the fens of Lincolnshire, where the exhalations are not only poisonous, but the waters so brackish that the inhabitants are obliged to make reservoirs for rainwater for their daily use. In such situations as this, people are liable to dangerous malignant fevers, agues, asthma, influenza, rheumatics, and other painful disorders from the fogs. To the unwholesomeness of such a place the great observer of nature thus alludes:

"May all the infection that the sun sucks up
From bogs, fens, flats, on Prospero fall, and make him
By inchmeal a disease."—Shakspere's *Tempest.*

Lord Bacon has enumerated several things which are objectionable in a site for a country-house; such, he says, are "ill ways, ill markets, and, if you will consult with Momus, ill neighbours.§ I speak not of many more, want of water, want of wood, shade, and shelter, want of fruitfulness, and mixture of grounds; want of places at some distance for sports, as hunting, hawking, and for races. Too near the sea, too remote, having the commodity of navigable rivers, or the discommodity of

* This appears to be the same kind of stone as was used in building Bolsover Castle, erected in 1633.—(A.)

† Moule's English Counties, Gloucestershire, vol. ii. p. 34.

‡ The vicinity about marshy and stagnant waters is a most improper site for a dwelling; for independently of the malaria which issues from these waters, especially in summer, they create an atmospheric dampness, which communicates itself to the surrounding dwellings, and is the great cause of epidemical disorders.

"Plagues
Rise from the putrid watery element
Motionless and rank."—(Armstrong.)

§ I remember, says Sir Henry Wotton, I know well how to sort unless I call it political, by no means to build too near a great neighbour, which were in truth to be as unpleasantly seated on the earth as Mercurie is in the heavens, for the most part ever in combustion or obscurity under brighter beams than his own.—(Sir Henry Wotton's Elements of Architecture, 1624.)

their overflowing; too far off from great cities, which may hinder business, or too near them, which lurcheth all provisions, and maketh everything dear. When a man hath a great living laid together, so it is good to know them and think of them, that a man may take as many as he can; and if he have several dwellings, that he sort them, so that what he wants in the one he may find in the other. Lucullus answered Pompey well, who when he saw his stately galleries and rooms so large and lightsome in one of his country-houses, said, 'Surely an excellent place for summer, but how do you do in winter?' Lucullus answered, 'Why, do you not think me as wise as some fowls are that change their abode towards the winter.'"

The top of a hill is an improper place to erect a house upon, for here it will be bleak in the winter,* unless there is another hill at some small distance behind to form a screen and to protect the edifice. Nor is the bottom of a hill a proper place, for there it will receive the rains copiously as they descend from the upland in the rear, soaking the very foundations, keeping it always damp, and chilling the vitals of the occupants.

Neither is the north side of a hill a proper site; for here the sun does not shine, which is required to air and ventilate the rooms by day, and to draw off the dew which has fallen during the night. Such situations will ever be damp and dreary, exposed to cold and piercing winds, rendering such habitations unhealthy, cheerless, and insupportable during the winter season. Neither should a mansion be erected where the air is unequal or the climate too variable; or where the salubrity of the place is ever likely to become contaminated from any particular local circumstances which it may not be in our power to prevent: this has been the result with those places which were once the most healthful.†

Such was Baiæ, the healthiest place in Italy during the reign of Augustus, when it was the resort of Virgil and Horace; but the successor of Augustus was destined to taste the bitters of despotism, and to drain the cup to the very dregs. Then Baiæ became the receptacle of profligacy and effeminacy,‡ of lust and cruelty, as far beyond the bounds of nature as the power of the imperial masters was above human control. The beauties of nature were tarnished by the foulness of vice, and the virtuous man turned away from scenes which he could not behold without disgust and horror. Silius, Martial, Statius courted the muse in vain on that shore which had inspired the strains of Virgil. They attempted to celebrate the beauties of Baiæ, but the subject was degraded, and their strains were forced and inharmonious. Baiæ and its retreats, defiled by obscenity and stained with blood, were doomed to devastation; and earthquakes, war, and pestilence were employed in succession to waste its fields and depopulate its shores: the pompous villas were gradually levelled in the dust; its seats and alcoves swallowed up in the sea; its salubrious waters were turned into pools of infection; and its gales, that once breathed health and perfumes, now wafted poison

* Again, a house being exposed to particular winds is a material point to be taken into consideration; for a house that is wholly unprotected, particularly on the north and north-east sides, can never be a suitable habitation for a family. Art may, indeed, accomplish much in preventing the evils resulting from an injudicious situation. Trees are the best for this purpose, and the most ornamental shelter; but they are of slow growth, and consequently the evil may be experienced before the remedy can be brought into actual operation. It is therefore of no minor importance that we should consider well the greater or less exposure of the situation before it be finally determined upon as the site of a country residence.—(Architectus.)

† In Italy, at some distance from Rome, a wood which was cut down and sold to the French in the time of war, affected the air of the city so far as to render some of the hills, formerly remarkably salubrious, afterwards places subject to agues and fevers, by exposing them to the winds that blow from the marshes on the shore. This wood consisted of oak, ilex, myrtle, and box, which were peculiarly refreshing, not from its shade only, but by the perfumes that exhaled on all sides from its odoriferous shrubs.—(Eustace's Italy.) Alexander Pope, in one of his epistles, speaks of a person who, at an immense expense, cut through a lofty hill to obtain a view from his house, that this let in the north wind, and he was then obliged to abandon his mansion altogether.—(Ibid.)

‡ Senec. Ep. i. v.

and death; the towns, forsaken by the inhabitants, gradually sunk to ruin, and the most delicious region the sun beheld in its course is now a desert, and seems destined to expiate, in ages of silence and desolation, the crimes of the last degenerate Romans.*

A house is not well situated on the east side of a hill, although it has the early advantage of the morning sun, to exhale the vapours that have fallen in dews during the night; and certainly the earlier the damps are drawn up in the morning the healthier the spot will be; neither will the sun long continue here, and the wind from this point is very pernicious to health, which is known by experience to many an asthmatic person. It also blights vegetation, blossoms, and young fruits. In the Levant this wind is particularly stormy and boisterous, and is even counted noxious in Arabia: it is what our mariners call a Levanter, and is the same called in the Acts of the Apostles Euroclydon, by which St. Paul and his companions were wrecked on the island of Melita. A house built on a spot where it long continues damp after rain, and such is always the case where it is clayey, and houses in a town situated on the south side of the street or a square facing the north, are not so healthy as those on the opposite side: in the former the footpaths are seldom long dry during the winter months, which produces chilliness within the house; even snow on this side will lie for weeks together, while on either of the other sides of the square it seldom remains long. A house—built near the property of another person, where there are mineral streams, or rank and poisonous weeds growing in abundance, but which we have not the power of removing, such as hemlock, henbane, and aconite—all plants that affect the air—is far from eligible.†

Hills on the east and south side are the most inconveniently situated, and where there is a naked rock immediately behind or in the rear of the house, though it may be picturesque, it will produce vertigo and lassitude: the rock containing much smooth surface will reflect the heat of the sun's rays on the house, and render it a sweating-bath at night. Now though all smooth surfaces reflect the most heat when exposed to the sun, yet they attract the most damp and throw out the cold in the absence of the sun in winter. It is further necessary to remark, that

* The present unwholesomeness of Baiæ and its bay must be ascribed partly to the same cause as that of the lakes Agnano and Averno, and partly to the streams and sources, once collected on the hills behind it in aqueducts and reservoirs, now spreading and oozing down the declivities and settling in the hollow below. In a warm climate all stagnant water becomes putrid during the hot months: this inconvenience might easily be remedied, and will without doubt, when the government becomes more active and the taste of the Neapolitan gentry more rural.—(Eustace.)

In a warm country stagnant water and swampy grounds, the unavoidable effects of inundations, emit vapours that never fail to produce infection: so virulent was the pestilence at one time in Rome, occasioned by an overflowing of the Tiber, which deluged the country and flooded the streets, that in a procession in which Gregory the Great marched at the head of the people against the northern invaders, he had the mortification to see seventy of his flock fall down and expire in his presence. The same effect was once produced in the Gulf of Corinth by a similar cause: every autumn, the exhalations from the swamps and marshes at the mouth of the Achelas are carried up the country, which in the calm and sultry months of summer remain suspended in the air, and have considerable effect on its salubrity.—(A.)

In the Maremma of Italy, where, from the nakedness and sandiness of the earth, the scanty and stunted clumps of trees are a mere mockery of shade and verdure, are sulphurous and brackish springs, and on every side foul exhalations rising from the volcanic soil. It is even hurtful here to close the eyes in sleep, for there is disease in the damp and noxious particles after sunset and early in the morning. During the extreme heat of noon these fœtid mists are seen to rise from the pestilent and forsaken valleys, carrying death in their track. They are caused partly by the sulphurous nature of the land, and partly, as in the Campagna near Rome, from a long-neglected and putrid soil and decayed vegetation. The appearance of the few peasants that inhabit the Campagna is frightful and disgusting: distorted features, dark-yellow complexion, livid eyes and lips, in short, all the symptoms of dropsy, jaundice, and agues seem united in their persons, with intermitting fevers, typhus, and phthisical symptoms. Few natives of Sienna visit the pestilential districts of Maremma without remembering the melancholy fate of Madonna Pia, who died in this climate.—(B.)

Even in England, where the summer-heat is so moderate, and of much shorter duration, and where the wind blows strong from one point or other ten months out of the twelve, the fens, marshes, and lowlands in Essex, Cambridgeshire, and Lincolnshire, diffuse their influence wide enough to enable us to calculate its effects in hotter climates.—(R. B.)

† Virgil, Georgic ii. l. 184. If a person was to visit where those weeds grow after nightfall, the effluvia from them would be seriously felt, as all noxious vapours are then the strongest. This shows us that a neighbourhood should be well examined before we build our house, for after we begin it will be folly to complain of what we should have before observed. —(Architectus.)

a house would be ill situated in a valley, because there it will be liable to have fogs hovering about it in winter, as well as being exposed, both up and down the valley, to the drafts in the winter season. The chimneys will also be liable to smoke in winter; and in summer, if the valley lies north and south, it will be exposed to the reflecting heat from the sloping ground; and if situated east and west, it will, on the other hand, be impossible to live there and enjoy health.*

Houses built in hollows, encircled by mountains or hills, like a concave bowl, are thus concealed in obscurity; while the earth is here always impregnated with rains, which settle and send forth unwholesome vapours; for when the wind ceases to blow here, the air will become gross and sickly through stagnation, and the provisions carried into houses so situated soon become corrupted with moisture, and animal food becomes tainted, which is one proof of the quality of bad air in these places. If, on the one hand, the sun can penetrate into those valleys or hollows, the reflection of its rays will create excessive heats, and if not, on the other hand, a perpetual shade, which in summer will render the inhabitants indolent through lassitude, and in the winter subject them to violent shivering colds.

A damp and low situation near a river, is of all others perhaps the most to be avoided; for here neither beauty of style in the building nor taste in the ornamental department, nor judgment in the construction of the requisite conveniences can in any degree compensate for those evils which are the invariable results of a low and damp situation.† Health, to maintain which is always a primary object with those who expend their fortunes in the erection of a country residence, may be daily and hourly sacrificed, and property be injured by the imperceptible destruction of the internal decorations, furniture, and wearing apparel. Extensive repairs are constantly required, and one injury or dilapidation is no sooner remedied than another presents itself, engendered by the dampness of the situation.

Finally, a house should never be built on a barren spot, as was the case, I well remember, some years ago, near Blackheath in Kent, where Sir Gregory Page erected a mansion: it was a regular and superb pile, in the Italian style of architecture; but the glebe was unfertile, nor had the house any distant prospect worthy of notice, for the principal front, elevated with an upper portico, faced a common wild, where no rivulet glided by, no picturesque landscape or refreshing shade from the piercing sunbeams—everything was sunk into lowness and one uncultivated scene. The house, in the end, was abandoned, and afterwards levelled with the ground.

* A house placed on a knoll at the head of a valley is sometimes to be met with in the country; here it is injurious to health, the inhabitants being exposed to perpetual change of cold from a current of air which always augments in force in proportion as the passage through which it runs is diminished. The law of this augmentation is, that the air's force is compounded of its swiftness and density, and as these are increased so will the force of the wind. Thus if any quantity of air moves with twice the swiftness of a similar quantity it will have twice its force, but if at the same time that it is twice as swift it moves through twice a smaller tube, and the sides of the canal give no resistance to its motion, it will have four times its force. This, however, is not entirely the case, for the sides of the tube give a resistance and retard its motion in a proportion that is not easily calculated. From this increase of the wind's density in blowing through narrow passages, it is that we find the storms so very violent that sometimes blow between two neighbouring hills. It is from this that when caught in long arcades opening at one end, or the passage of a house where the front and back doors are open, having a draft through, the wind blows with great force along them. From this increased density it is that we meet with such cold blasts at the corners of streets. In short, whatever diminishes its bulk without taking entirely away from its motion, increases the vehemence of the wind.—(Goldsmith's Philosophy, vol. ii.)

† A house built in low or flat grounds by a river side makes work for the physicians, apothecaries, surgeons, coffin and grave-makers.—(Sir Balthazar Gerbier's Counsel to all Builders.)

DISSERTATION VIII.

ADVICE WHERE TO BUILD A HOUSE.

"Enchanting site! where every rural sweet,
And every natural charm delights to meet;
Where to the eye the landscape opens wide,
And dancing spirits roll a quicker tide.
Around new objects prompt the excursive lay,
And gently winding stream, the meadows gay;
The smiling village, sunk in leafy shade,
That just unfolds its low roofs through the glade.
The splendid seat, the tower, the shining spire,
And hills that catch the sun's departing fire.
Here you may build without regret,
For nature charms such blest retreat."—ARCHITECTUS.

As to the noblemen and gentlemen's mansions in England, they are variously seated over the whole kingdom, although they abound more in some counties than in others. In France the châteaux are chiefly confined to the south and suburbs of Paris; in Italy the villas are crowded together in certain fashionable regions. Thus, while the vicinity of Rome, the Alban Mount, the banks of the Tiber, and of the Anio, the Arno, and all Campania and its coast, seem to have been covered with seats, the recesses of the Sabine hills, and the windings of the Apennines, though as beautiful and much cooler, and probably more salubrious, were almost deserted. Horace mentions only one neighbour, Cervius, who perhaps existed only in verse; and the younger Pliny tells us, that his friends from the neighbouring towns occasionally broke in upon his studies with a seasonable interruption, an expression which seems to imply that there were few or no villas immediately near.* Horace has given a pleasing account of the situation, prospect, and healthiness of his Sabine farm, addressed to his patron Quinctius, in his sixteenth epistle:

"Ask not, good Quinctius, if my farm maintain
Its wealthy master with abundant grain,
With fruits or pastures; ask not if the vine
Around its bridegroom elm luxurious twine,
For I'll describe, and in loquacious strain,
The site and figure of the pleasing scene.
A chain of mountains, with a vale divide,
That opens to the sun on either side;
The left wide-spreading to the rising day;
The right is warm'd beneath the setting ray.
How mild the clime where sloes luxurious grow,
And blushing cornels on the hawthorn glow!
My cattle are with plenteous acorns fed,
Whose various oaks around their master spread:
Well might you swear that here Tarentum waves
Its dusky shades, and pours forth all its leaves.
A fountain to a rivulet gives its name,
Cooler and purer than a Thracian stream;
Useful to ease an aching head it flows,
Or when with burning pains the stomach glows.
This pleasing, this delicious soft retreat,
In safety guards me from September's heat."

In selecting a good situation for a house, two essential things are to be considered, after those of air, water, and the soil. First, a pleasing accompaniment of home scenery, with which the architecture

* Horat. Sat. lib. ii. 6. Pliny, Epist. lib. ix. ep. 36. "Nulla necessitas togæ," says the latter in another epistle, speaking of some villa, lib. v. epist. 6. "Nemo arcessitor ex proximo."

ought to accord, so as to produce a perfect whole, is essential; and, with such a combination, will be sure to render this an agreeable abode. The other important object consists in having excellent points of view towards the house, as well as some grand objects in the distance, which may be enjoyed by the family within the house, but which scenes require to be varied and pleasing.* Suppose, for instance, the background to be an umbrageous wood on the north, a vista at the east, and with an opening distance towards the south and west; the form of the foreground, as well as that of the back, should also be varied and sloping to produce a good effect.

Having pointed out the ill effects of noxious plants near a bad situation, let us next consider those salubrious wild shrubs and aromatic flowers bordering upon a good one. Who does not admire the perfumes of the field-cowslip, the wild thyme, the heather, and the hawthorn-blossoms, the flowers of various woodbines, and the wild rose that decorate our hedgerows, as well as the violet and primrose that scent the thicket, and then lament the absence of the myrrh, the magnolia, and the cinnamon, which charmed the poets of Persia and of Arabia?†

We have said that a good situation or site for a house should be on an agreeable ascent, and where the house is to be erected the ground round the spot to be level, and backed out from boisterous north winds, by rising ornamental woodland ground in the rear, but not to approach near the house on the eastern side. Here there should be low distant hills and partial open shrubbery, so as to admit the rays of the morning sun at an early hour, which is animating and refreshing in the winter season. The outline of the house and scenery harmonizing together and appearing as a whole, will, on a sloping ground, never fail to convey the idea of a picture hung against a wall. Richmond Hill is such a beautiful and salubrious suburban spot, that it has justly been called the Italy of England, in reference to its appearance and scenery: the detached houses rising above each other, in receding sites, from each of which is seen the Thames meandering majestically along in the vale below. This spot has frequently been a subject both for the painter and the poet: here lived Thomson, the author of the Seasons; and at Twickenham, near it, was the residence of Alexander Pope. Hampstead, near London, like the Alban Mount in the vicinity of Rome, has been celebrated for its extensive views and pleasant air. In this place lived Steel, the celebrated contemporary of Addison; and since his day many more worthies of the pen and pencil. Herne Hill, near Dulwich, a spot bespangled with suburban villas, most of which are in the Italian style, is another delightful eminence.

At no great distance from the metropolis, Kent may be noticed as possessing charming and salubrious grounds; and if we extend our observations further along the south coast to Sussex, more beautiful, picturesque, and enchanting places still abound, particularly Hastings, then Hampshire, next the Isle of Wight, and Dorsetshire, as that of Charmouth and Pool; and, lastly, that of Devonshire in the west, the Montpellier of England. This county may be said to possess various degrees of climate, suitable to every constitution. That of Ilfracombe in the north, a most romantic and picturesque watering-place, is very bracing to nervous and hypochondriac persons. The scenery at Clovelly, and the sublime rocky glen of Linton, at a short distance from the place, are enchanting to the visitor. Torquay is a perfect paradise in respect to its scenery, and possesses a mild air: here rock, upland, wood, and water constitute the landscape, while the rural and umbrageous walks in the neighbourhood are very varied, by which the inhabitants can take exercise, and be constantly interested,

* To enjoy a prospect of this description in the winter season, seen from a library, the late Lord Heathfield had a fire place constructed under a window in a recess at Buckland Abbey, near Tavistock, in Devonshire.—(B.)

† Odoriferous particles are elicited from all plants, and float in the air, from whence they rest upon the olfactory nerves, thus affecting them with a most agreeable and exhilarating sensation.—(G.)

and sheltered from the prevailing wind of the season.* Torquay and its vicinity possess three different degrees of temperature; that of Torquay is soft; Tor-mohun, which adjoins it on rising ground, is of the middle degree; and Mary Church, which is still more elevated, is more bracing.†

In reference to Torbay, on whose crescent-shore Torquay is situated, we may describe its picture by reference to a parallel place in Italy, that of Genoa. This bay is in the form of an amphitheatre: the town spreads her streets and churches, and her suburbs and villas, over a vast semicircular tract of craggy rocks and declivities facing the sea. The white buildings, ascending one above the other, make a splendid show, and give it an appearance of much magnificence.‡

Picturesque and sunny declivities, where summer first unfolds her blossoms and her verdure, are at all times the most delightful to build on; but swell and hollow should also constitute the face of nature at a proper distance around the seat, and the hills various, undulating, and unequal, some being bolder or higher than others, similar to those bold rolling clouds seen on a windy day, and not like the waves of the sea all equal, but giving to one or other a perspective distance, like the scenes in a theatre. Here too, though the objects remain the same, yet they will be constantly changing their appearance by the various hues flung over them from the passing clouds. In the morning tinted with a silvery grey, at noon glittering in the sunbeams, and then in the evening clothed in a mantle of purple, assuming a deeper and darker shade, till they are wrapped in the gloom of night. These effects in a country where the swells of the hills at a distance are bold, like the promontory at Mamhead, extending over Haldon, and from thence towards Dartmoor in the west, as seen from Exmouth and Exeter in the evening, are truly sublime—particularly at the time when the god of day is sinking into the western horizon, with all the colours of the rainbow in his train.

England affords a variety of pleasing and truly picturesque spots like this,§ with hill and dale, upland and low undulations in various shapes, with glens, sylvan woods, purling streams, and waterfalls, dashing down rocky precipices, with here and there the most romantic objects rising to the view. In other parts are seen more cultivated land, as pastures, corn-fields, orchards, fruit-gardens, and flowery meadows. The seasons change all these: the spring decks it with a varied green verdure, a peculiar bespangled painting of flowers and blossoms. The summer shifts the

* The soft zephyrs that are wafted over the town of Torquay and its neighbourhood from the bay, bring to our mind that of Smyrna, where every morning about sunrise a fresh gale of air blows from the sea across the land; and from its wholesomeness and utility in cleansing the infected air, this wind is always called the doctor.—(Burder's Oriental Customs, p. 367.)

† We might mention many more places in this neighbourhood very healthful, such as that of Livermead on the road from Torquay to Paignton, and Salcombe near Dartmouth, which latter place we consider extremely healthful: but to sum up the peculiar merits of this county, with which no other can be compared except that of Kent, we may say the south possesses soft air, the midland gently bracing, and the north more sharp.

‡ Milton's passionate admiration of Tuscany and Tuscan institutions enters into the subject of many of his epistles: in after life they became the source of many soothing reminiscences. "Where I to open my eyes once more on earth," said he, "I would wish to open them on Fiesole and the Val d'Arno." See his EPITHALAMIUM DAMONIS, i. c. 29. Note 22 to the Heliotrope, canto i. Tivoli in Italy is also one of the most beautiful spots, perhaps, in the world for a villa. The traveller as he advances here will have on his left the steep banks, covered with trees, shrubs, and gardens, and on his right the bold but varying swells of the hills, shaded with groves of olives. These sunny declivities are the spots which were once interspersed with splendid villas, the favourite abodes of the most luxuriant and refined Romans. Horace is supposed to have had a villa in this neighbourhood, and such a spot is pointed out. The site is indeed worthy of the poet; where it was defended by a semicircular range of wood and mountains, from every cold blustering wind: he might here look down on the playful windings of the Arno below, discover numerous rills gleaming through the thickets as they glided down the opposite bank, and catch a distant perspective of Aurea Roma, or the golden towers of the capitol soaring majestically on its distant mount.—(Forsyth.)

§ Powderham grounds in Devonshire, around the seat of the Earl of Devon, possess every requisite that constitutes the grand and the sublime: for here hill and dale, wood and water compose its undulating surface. The park is well wooded and stocked with deer, and the castle, built in the reign of the Plantagenets, overlooks the river Ex and the estuary at Exmouth, whilst a bold and lofty mount at the west of the castle, is crowned with a Belvedere, commanding the most extensive panoramic view over fair Devon. This Belvedere, which is triangular on the plan, with hexagonal battlemented staircase-towers at the angles, was erected by Lord Courtney, father of the late Earl, in 1773, from the model of one at Shrubs Hill, near Windsor.—(R. B.)

scene to ripening fruits; the meadows and pastures wear another face. In autumn the orchards are laden with fruit, and the spacious fields are gilded with a yellow hue. Thus

"Bedeck'd with beauties in a swift decline,
Till hoary winter tops the loaded bough,
Swells up the surface of the gilded stream,
Pours out its rain or whitens all the hills,
Makes nature naked till the spring returns.
Then round the same variety again,
Revolving beauties everywhere appear,
And last resembled this succeeding year."

The spot that the man of taste would select for a rural residence, would always be where nature has most romantically diversified the scene with hill and dale, rock, wood, and meandering streams: here he would have a beautiful scope to display his art by various plantations, which he could range in fine sweeping masses over the irregularities of the ground, interspersed with majestic trees, such as elm, chestnut, beech, and ash, mixed with ilex, or evergreen oaks, and interspersed with various firs, whose tasteful forms combining with a rich, wide, and bold umbrageous foliage, have a fine effect to the painter's eye; while in the distant plantations opening radiating glades would appear, relieving the home-scenery by a diversity of distant views and variety of tints among the shrubs: some parts of the ground being more pleasantly disposed, while others again are to be planted to afford a welcome shade to the herds of deer, browsing beneath their spreading branches. If a rookery were near the house, it would still more enliven the scene. However, gentlemen of different tastes and habits will always choose different situations.

"The boist'rous billows of tempestuous seas
May more invite another's changing mind,
To trace the rolling vessel in its course,
Raised on the summit of the foaming surge,
Now mounting on a wave, whose towering height
Another wave succeeding sinks as low:
Alternate scenes likewise both nature made,
And different sentiments do each possess;
What one delights may be another's pain.*
All these the architect must study well;
Be well informed what nature most requires
To those, and set them out in all these scenes
That give a greatness to the opening lawn,
And pleasing softness to the rural glade.
This is the art's perfection, well to know,
And he who traceth best the different climes,
And most resembles nature in his choice,
And just proportion, harmony, and dress,
Appropriates architecture to its noblest use."

Finally, let it be borne in mind that the most appropriate spot to choose for a house should be where the most exact critic in landscape-gardening would scarcely wish to alter a portion in the assemblage of hills and dales, woods, and water, and

"Where spring perpetual leads the laughing hours,
And winter wears a wreath of summer flowers."

* A house with this description of accompaniment is so situated at Dawlish in Devonshire, on the very edge of the sea, called Sea Lawn Cottage, belonging to a gentleman of great taste, of the name of Powel.—(A.)

DISSERTATION IX.

ON THE PRINCIPLES OF CONSTRUCTION.

" How reverend is the face of this tall pile,
Whose ancient pillars rear their marble heads
To bear aloft its arch'd and ponderous roof,
By its own weight made stedfast and immovable!"—CONGREVE.

The science of construction consists in a knowledge of forming, proportioning, and uniting the different parts of a building together; calculated upon certain mathematical and mechanical principles, so as to produce balance, and give stability to every part of the work, by counteracting force and pressure, both laterally as well as vertically. To be certain of the right balance, efficacy of the abutments, and sufficiency of the resisting powers in every part of a building, are of the utmost importance to the stability of public works. It is this knowledge of the practical science, added to that of design, which raises the architect above the mere architectural draughtsman, or the young practitioner,* who is obliged to avoid the introduction of those more beautiful parts of architecture, from a want of that knowledge of carrying them into execution. Or were he occasionally to introduce them, it might be in such manner that he would be continually running the risk of designing impossibilities, and perhaps witnessing his own threatening fabrics. The knowledge of construction connects the art with the science of architecture, and gives proper effect to their united energies, adding also to their beauties and necessities the mathematical and arithmetical sciences, or the knowledge of calculating pressure on every part according to the various preponderating weights above.

In combining and uniting the materials in the construction of an edifice, there are three distinct great principles brought into use, namely, simple repose, equipoise, and tie. The object in all these three distinct principles is to produce such a state of quietude in the materials of the building, that their weight shall not produce any fracture or displacement. The principles of simple repose in the construction of buildings is, where the materials are merely piled perpendicularly, so as to form piers with beams across, as lintels laid horizontally upon the piers, pressing down-

* " Art," says Leonardo da Vinci, " is long and life short; therefore a person should begin to study early to be a proficient." Not so does the young architect. " Taken from school at an age in which he cannot have imbibed in any degree that sufficiency of a polite and liberal education, he frequently, with no knowledge of geometry beyond the mere manual dexterity of drawing polygons, circles, and plain lines, while yet scarcely arrived at manhood, forces himself into premature practice; and with the expenses of a separate establishment, it cannot be wondered at that the adolescent architect sometimes has in after life bitter cause to repent the circumstances and the rashness which led him too early to adopt practical design and construction solely by his youthful failures; for it is then with deep repentance that he perceives the adequate bearing and the confusion of styles into which he has fallen; the whole chronology of arches being sometimes paraded in the façade, or the mixture of Roman forms and Italian luxury, with the severe and elegant simplicity of the Greeks. In many a breaking up and fracture he has the mortification to find, that inventions upon which he has relied for external duration, have not survived their inventor's ruin; that he has formed his pyramids with graduated outlines, and so situated his pillars, as if Roslyn chapel and some other impure sources were his only preceptor. He at last laments that he has placed his columns opposite apertures instead of opposite piers: he regrets that from false bearing, his want of plumb and equipoise, his work is so fractured that even a man of more experience than himself cannot restore it: he perceives too late that his patronage of mean and fragile stone, and pretended substitutes for it; his reliance on bad timber has added something to the wreck of his country's architecture: he perceives, with deep mortification, that his want of mathematical and mechanical skill, both theoretical and practical, has led him to perform that which a professor of more experience would avoid. Broken arches, tieless roofs, walls thrust from their right position, partitions falsely trussed, and groaning beneath loads, which formed otherwise they might have borne unyieldingly, and a foundation which fails in all directions from want of sufficient spread to the footings, or arising from the building being carried up piecemeal, or from other causes: these are a few of the faults and disasters which in aftertimes make a precocious practitioner wish he had studied full ten years more before he had risked himself or his employer's property."—(A. Bartholomew's Specifications of Architecture, c. xvii..)

wardly merely with the gravity of the materials, without any thrust or any other indications to destroy the position of any part of the arrangement. Equipoise is required in the construction of buildings where materials are overlaid, and from thence carried up upon the principle of the arch, springing from piers or columns. This principle enables us by science to erect great works with the least materials, and admitting the grandest and most noble parts of architecture to be executed occupying the least room. Theoretically this construction should be perfect, but from the complicated principles which it involves it is very frequently more or less imperfect; but even with its frequent practical imperfections, it has proved for many ages the means whereby man is enabled to arch, to vault, and to dome over large buildings in a manner which otherwise he could not accomplish.*

But in order to perform this under every circumstance, the architect must be well acquainted with the powers of abutments: much of the failure of modern edifices resulting from a want of such knowledge. The abutment must always be sufficient to sustain the weight, thrust, or moving power which it has to resist, and it should be more than sufficient, otherwise the slightest accident, as additional weight, irregularly disposed, yielding of foundations, sudden emergency of shock, will render it insufficient. Thus the limbs of two similar arches meeting upon one pier afford an abutment to each other of the most perfect kind, but if one of the abutments supporting the other limb of one of the arches be so weak as to cause one of the arches to give way, the other arch may also lose its exact equilibrium. Again, if one of the arches have upon its crown more weight than the other, the other arch also may be made to settle irregularly; hence it becomes necessary, that besides an unyielding of foundation, there must be abutment sufficient to resist all accident. The most perfect system of abutment is that which is in all respects equal: thus, for instance, the inclined sides of a hollow conical or pyramidical steeple afford abutment of bulk, inclination, certainty of material and weight, equal to those of each opposite side, and the entire circuit of abutments gives to the whole a perfect equilibrium, which nothing but violent accident or undue settlement at the foundation can in the slightest degree derange; and even after such settlement has taken place, frequently no fracture is observable. Hence a steeple of the middle ages consisting of four or more open buttresses, which the moderns may behold with fear and trembling, is a more safe and certain mode of construction than our square towers, which by their weight and settlement have a tendency to fall apart and hang, and after that fall to premature decay, merely by the weight of their materials.†

Tying is the third great principle in the construction of buildings, and is comparatively of modern invention. That state of rest which the ancients endeavoured to obtain by the principle of simple repose, and the equipoise, is now by the principle of tying obtained through confining the thrusting powers, not by external abutments and equipoise, but by internal restraint; it leads to the most exqui-

* It is but justice to the late Sir John Soane to explain the manner in which he constructed nearly all the apartments of the Bank of England entirely fire-proof, and without any carpentry whatever; in his arches and domes he made use largely of hollow pots or cones of coarse earthenware; these, while possessing strength sufficient not to crush, by their lightness, relieve the walls in a great measure both from the lateral thrust and the perpendicular pressure, which results from the use of heavy solid materials; and, indeed, it might be possible to form arches and vaults of equilibrium of these pots, by leaving empty those of them placed at the summit of the work, and gradually filling them with cement or mortar of different densities, increasing towards the springing of the arch; and thus to prevent both crushing and drift to the haunches, the weaker part of the work.—(A. B.) The ceilings in the grand hall of Buckingham Palace, by the late John Nash, have been formed entirely of earthenware. The architects in the middle ages frequently vaulted their edifices with chalk; of such is the nave of Canterbury Cathedral, which the author of this work has walked over.—(R. B.)

† It is the rain that finds its way betwixt the arch-stones in winter, and is there arrested by the frost, which ruins ancient buildings when exposed to the wet. Ice occupies more space than water unfrozen, and thus when formed, operates as so many wedges inserted between the stones of the arch, which, of course, are dislocated by this interposition, and in process of time the equilibrium of the arch is destroyed.—(Life of Sir Walter Scott, vol. v. 183.)

sitely simple and beautiful mechanical contrivance perhaps ever invented. This contrivance is technically called trussing: nothing can be more simple, yet nothing requires more care in its construction: it contains in itself both the germs of ruin and the sure and perfect cure for it. The inclined beams forming a truss would be violently striving to work the ruin of the building, by thrusting apart and throwing down its walls, were it not for the horizontal tie-beam restraining them: the inclined beams must not reach the walls; they must only come upon the tie-beams, then, while the tie-beam remains unbroken, the truss lies simply with its own weight upon the walls: there is then no thrust, no cross strain upon the walls. Such a mechanical contrivance is the most wonderful economiser of materials. It may be adopted more or less in a number of different ways: well applied it gives to every part of a building, however large its dimensions, that state of rest which the earliest buildings of antiquity possessed, while it enables us, with roof-beams, floors, galleries, hanging partitions, and platforms, to span enormous widths, which the ancients never could do without prodigious expense of material, and frequently not without great inconvenience in the interior. The principle is so exquisitely beautiful, so mathematical, so powerful, yet so simple and so cheap, that every person who calls himself a practical builder should be acquainted with it. His knowledge in this simple fact alone will save him, in the construction of buildings, an infinite deal more of outlay than he can previously conceive, while it would render his buildings infinitely better and more durable.*

The neglect of the study of the laws of force is a principal cause of the instability of modern edifices. The practitioner having had no grounding in this science performs almost everything in practical architecture by mere guess, assumption, tradition, or caprice; hence if his building hold together, it is oftentimes rather more from good fortune than from science; and while, in many cases, a large portion of the materials which are made use of perform no duty, in many cases another large portion of the materials not only do not afford any support or stability to the fabric, but really by the force of their gravity, work a positive injury to the other parts of the edifice.

DISSERTATION X.

A CAUTION ON LAYING FOUNDATIONS.

And "a foolish man built his house upon the sand; and the rain descended, and the floods came, and the winds blew, and beat upon that house, and it fell, and great was the fall thereof."—St. Matthew's Gospel.

The foundation of a building is that part of the walls which is laid under or below the surface of the earth, and which serves as a basis for the superstructure of the whole house that is raised above. It is the first thing to be considered in the commencement or erection of the house; and so much depends on the outset as to the stability of the fabric, that it cannot be too sufficiently regarded. The foundation of a building should be of such a nature that it will bear without compression or yielding the weight laid upon it: the best and most solid is that of rock, though that may sometimes be deceiving, if the upper layer be a loose slate much inclined in the stratification, or the cap in a state of decomposition. This we have noticed in the discourse on the substrata under

* It is to be regretted that the study of the laws of force and equilibrium is so much neglected, for while this neglect continues, the execution of every considerable work requiring science, such as bridges, (belonging to the architect's province,) will more and more pass away from the architect to the engineer, who, while he is in general better acquainted than the architect with gravitation and the law of force, not unfrequently is as destitute and careless about the principles of beauty in his designs as the architect is regardless of their soundness and durability. Thus we have works which are *ab initio* in shivers; while others, such as provincial bridges, though generally sound, are from their offensive uncouthness, a satire upon that folly which should at so great an expense attempt for beauty that which to every eye is unsightly.—(A. B.)

the earth's crust. The next foundation in quality is that of compact gravel, which does not flow off and diminish in quantity from water percolating through it; and where gravel occurs, as we have observed in the disquisition on air, it is the most desirable, as it greatly contributes to the healthfulness of the place; although the substrata beneath may probably vary in solidity in different places and at different depths, and materially so from what appears above or uppermost.* It is therefore always advisable to sink or dig the well for the pump-water before the foundations are commenced; by this the architect will be able to ascertain the quality of the strata underneath the earth. It is however to be observed, that there is often an unsound matter directly beneath the different layers of earth, and in that case the strength and firmness of the superficial strata are but a decoy, and a dependence upon it will, in the end, cause the settlement of the building, which if it do not fall to the ground, will be sure to produce serious cracks in the wall, though the foundation may have a footing.†

Rock is the most solid foundation, but this is not everywhere to be found, for in many parishes in England none at all exists. A compacted gravel, as we have said, is the next in degree; but in order to judge of the nature of its excellence or solidity, where it is to be met with, we must observe and examine the thickness of the bed or its depth underneath, as there may be some other strata just below, such as blue clay imbedded with fossil shells, which will always be discovered in sinking the well.‡ If the gravel be in a thick bed, and the under strata of a sound, hard, and firm consistency, there needs no assistance of art or auxiliary support for the walls, for this will bear any weight.§ If it prove to be the reverse we must then have recourse to art, either by adopting a concrete foundation, or piling and planking. The concrete in such case is to be composed of hard stony courses, such as the screenings of gravel and other equal-sized pebblestones, mixed up with hot lime and sand, which is to be poured on the stones, the same being first well rammed down; and if further substance is required, increased to three or four layers.

To ascertain the solidity of a foundation, so as to know whether it is equal and every way sound after the trenches have been dug and cleared out, Palladio advises the throwing down of great

* If the soil under a building be of a soft nature, it will of necessity yield or compress beneath the weight placed upon it. If the building be uniform, and be well compacted and tied together, this compression may not lead to very serious consequences; but if any part of the building be loftier and more weighty than the other portions of it, as in the case of a church-tower or steeple, the soil beneath the extra weight will be more compressed than the other parts of the site, hence all that portion of this edifice will be sunk something into the ground, and in thus descending the masonry of the stone or brickwork will break away from the adjoining work, which remains more at its original level. This we find to be the case with the churches of St. James, Clerkenwell; St. Leonard, Shoreditch; St. Martin-in-the-Fields, and in many other instances in the metropolis.—(A. B.)

† In proportion as the soil is of a soft and yielding nature, the footings of a building should spread; for if a square yard of ground will bear a ton weight with a certain degree of compression, two separate square yards will bear two tons weight with the same degree of compression, or will bear one ton weight with only half the degree of compression, and perhaps less. On this principle, though a man in common shoes will sink by his weight in snow, yet with shoes with extended soles, which will meet with the resistance of a larger extent of snow, he can walk freely over the surface of it without sinking; and indeed upon a rolling soil, such as sand, a foundation of two united yards superficial will bear more than two separate yards superficial; for the soil can less readily roll away from the centre of a large plot than from the centre of a small one, for in the former instance it has further to move before it can escape and rise up at the sides.—(A. B.)

‡ Strong, hard, compact blue clay, like that in London, does not make a bad foundation. In a confined town shielded from the heat of the sun, it is very certain; but in open country situations during drought it is apt to split, and cause fractures in the building, unless the foundation be laid below the range of the fissures which occur in it. St. Paul's Cathedral, one of the very loftiest and weightiest buildings in the world, stands upon a layer of clay only from four to six feet thick, above a quicksand forty feet deep; yet from the breadth and compactness of its footing, the goodness of its masonry, the equipoise of its several parts, and the masterly skill with which it is joined together, it is freer from flaws and settlements than all other great buildings in the world, however good their foundations.—(Wren's Parentalia.)

§ Chalk is also a good and firm foundation for a building, and which commonly prevails in Wiltshire, Dorsetshire, and Berkshire.—(B.)

weights forcibly upon the ground, in those places which are suspected not to be so good as they should be; and then at the same time observing whether the ground shakes, trembles, or sounds hollow. This it appears was the method practised by the Italian architects, but with us a paviour's rammer is generally used, and in soft parts tried with the crowbar. If the ground should appear to shake, the trenches must then be sunk deeper; but if the substrata should after this prove partially faulty in places, piers may be built on each side of the defective part on that which is solid, and then arches turned over from one to the other; that is, over the loose foundation; but if the ground should not be very unsound, it may be made perfectly secure for sustaining the building by ramming down large stones closely packed together and well grouted in cement; if strong, then of lime and gravel-sand, laid in breadths at the bottom, proportioned to the intended thickness of the walls, including their footings. If the ground should prove to be insecure generally, then in all such cases it must be piled with oak or deal timber driven into the ground, and planked on the top to receive the intended superstructure.*

Lastly, it may be observed, that in partial loose foundations, where there are to be windows and doors in the buildings above, and where the piers stand on a firm foundation, it is an excellent method to introduce inverted or discharging segmental arches under such intended apertures. The beds or foundations of these piers, it is necessary to say, should all be as nearly as possible of the same depth, for although the bottoms of the trenches in one part may prove to be firm, yet if the piers should happen to be of different depths they will sink in the proportion thereto, according to the number of mortar-joints in them. Under these circumstances the deepest piers will sink more than those which are of a less depth, and thereby occasion great fractures in the upper parts of the edifice to which such foundations are applied.† Annexed is a copy of a letter written in 1695, in the reign of William and Mary, by Sir H. Shere to Lord Nottingham—on the subject of a mansion which his lordship was then about to build—transcribed from the Sloane MSS. in the British Museum.

SOME DIRECTIONS FOR MY LORD NOTTINGHAM'S BUILDING.

"Sir,

"You command me to give you my opinion touching some general rules for building, which if you had digested into queries on that subject, I should have known how to obey you. I therefore shortly observe, that the bottom on which your foundation is to rest ought to be uniform, viz., all rock or all gravel, for wherever any part of the bottom is defective or unequal it will be seen in the building, and 'tis hardly in the power of art to mend the defect; for which reason the

* If the intended foundation be for a building of great magnitude, then the following system should be adopted. Lay a course of Yorkshire landings all round in the trenches close to each other, each stone being about sixteen inches wider than the walls: then on that lay another course of stones, each being about eight inches narrower than the lower course; these must break the joints below. Now, if the building be a public one and extremely large, where expense must give way to strength and durability, a six-inch chain-bond, well charred, should be laid on the top of the upper course of stones, along the middle, carried all round, and spiked together at the junctions and angles. The Venetians are supposed to be the first in modern times who adopted the method of charring timber, which was done by exposing the piece to a strong fire, in the flame of which it was continually turned round by an engine, till it was completely covered with a black coaly crust, when it was taken out and fit for use. By this means it became so hardened as to resist the effects of earth, air, and water, even for centuries. The beams of the theatre at Herculaneum were converted into charcoal by the lava which overflowed that city; and after a lapse of more than seventeen hundred years, the charcoal is as perfect as if it had been formed but yesterday.—(R. B.)

† There is less pressure upon the foundation directly under the windows, which stand over each other in a house, than under the piers between them; consequently the foundations of those parts are not so considerable. The greatest pressure and greatest weight are at the angles of the building, and the most likely here to fail if the foundation has not been well considered and guarded against. In doubtful foundations it is best therefore to go deeper at the external angles of the building than that of the other parts, and allow some few weeks for the mortar in those angle-piers to harden before proceeding with the several parts of the walling; but if time will not allow of it, then those external angle-piers should be built in cement.—(R. B.) It is necessary to observe, that all stone and brick walls must have footings in the foundations from three to five courses, formed on each side of the wall like steps, and that the joints of mortar in these courses should always be laid thin to avoid much settlement of mortar; for this reason it is that you frequently see the two first courses of brickwork generally laid dry and then grouted.—(A.)

Italians, who give us the best examples in this science, go any depth and scruple no expense to obtain an equal uniform seat for their buildings. We have in England often buildings on clay, which is the worst bottom of all others, which when necessity urges and you cannot avoid it, the safest course is to lay your foundation on a good thickness of timber, in good lengths, (not cross) alongst, and according to the range of your work.* The use of this timber under your foundation I approve almost in all buildings that have weight, except rock, chalk, or gravel, but principally on a clay bottom, which being always moist is apt to yield and sink under the burthen that is laid on it. This defect becomes often very mischievous in great buildings, where you are under a necessity of charging the foundation with different weights of matter, as, namely, in great stacks of chimney-piers, where you have great openings, towers, pavilions, and the like. I say these differing weights pressing and treading heavier and lighter on the foundation while your masonry is green, makes different impressions on the yielding bottom, which breaks the bondage, cracks your walls, brings your work out of square, and becomes a great cause of the decay of most of our great buildings here in England, where we have over and above the worst materials and workmen for the masonry part in the whole world. Now laying of timber in the manner I have proposed for your foundation, will be a means of giving these burthensome parts of your building an ample footing, by which means it treads lighter on the bottom, by transferring the weight beyond its perpendicular gravitation, and so gives a proportional share of the building to those parts of the foundation which without such preventive applications would produce those ill effects I have noticed where your bottom is unsound.

"Burying timber likewise in the walls under the jaumbs of your windows and all openings, carries the burthen and sustains the weight by carrying a share of the pressure into the voids, which often prevents cracks and flaws in your walls, which we see almost everywhere in ill-performed structures, where the openings are wide and the piers are little. Now 'tis to be noted, that this use of timber in your foundation, and elsewhere, is only of a temporary service, and does its office while the work is green, by uniting the strength and bondage these parts have to sustain, which by that time the timber is decayed on which it rests, becomes solid and compact, and of strength sufficient to bear its own burthen without any foreign aids, as timber or any other matter whatever that is substituted, (as I may say,) to supply a present weakness, and is not of a piece and of the like duration with the rest of the matter whereof your masonry is composed.

"You tell me, my lord, you purpose this house entirely of stone, which I am sorry for, having, I think, very good reason to prefer brick to any other material whatsoever; I mean for the case or carcase of the building, not refusing any ornament or clothing of stone you may be supposed to give it. My grounds for this opinion is, first, from observation, that all works wrought in brick being more durable than in stone; the greater edifices and monuments of antiquity now in the world being of that material; and not to multiply instances of the truth of this remark, I take notice that the Pantheon at Rome, built by Agrippa in the first century, continues to this day perfect in all its strength, and certainly without the least appearance of defect or decay.† The walls of this structure are twenty feet thick; the core, or solid part thereof is brick, and covered only with a shell of marble, whereof the ornaments are composed.‡ Now if I am asked a reason for this superior strength and durability of works in brick, I answer first, the mortar, a cement which is the virgula that binds and holds the parts together, is allowed to be harder and more pure in works of brick than of any other material, and forasmuch as the decay of all buildings takes beginning at the mortar or cement, which is the least durable part, it follows that where that is hardest and most durable, the building must be most lasting and longer endures the weather and assaults of time.§ Now I say, that as the cement in brick-work rests better and is harder than in stone, being found in fact to corrode; the reason of which I will endeavour to give you, which I take to be this, namely, that bricks, as everything doth that is made by fire, acquire a warmth by that element that does not presently forsake it; which adventitious heat too partaking with the petrifying quality of the mortar, bakes and hardens it to a greater perfection than in stone, and so begets a finer and more durable consistency of the mass. Furthermore, brick hath the advantage of stone in point of figure, being cast and finished in such a fashion by art, both for length, breadth, and thickness, as consists with that bandage and union which is necessary to all works that are to be made into a mass, and compiled out of divers and lesser parts whereof the whole is to be composed. Bricks are likewise formed straight, flat, and with right-angles, which gives them an easy and firm seat one upon another, by which means they will rest and stand fair on their bases without the help of cement.

"This advantage is not to be had in stone-work, where the irregular figure of the stones is supplied by the addition of mortar, wherein they are pinned and sustained without any principle of stability but from the mortar that upholds it, and without which it would fall and forsake the place to which it is assigned in the building. Now of the cement, whereof there is a much greater proportion used in stone than in brick-work, so the weakest and least durable material in the mass; the more there is used thereof in compoing your work the weaker it will prove proportionably; where likewise brick-work becomes more durable than stone, and this not only from the necessity you are under of using more of the weaker material, but in regard of the figure, brick standing on a firm basis of its own without helps, but stone when the mortar decays, having nothing but that for the most part to sustain it, necessarily falls of itself and drops out of the building, which brick will not do; and thus a stone wall drops, moulders, and decays by faster degrees than brick. It is further advantageous, brick being lighter than stone by twenty per cent., that will bear to be wrought thinner and with less dimensions; the pile when finished then containing a lighter burthen to the foundation, is another help towards the strength and permanence of the structure.

"This may suffice touching the reasons of the preference of brick to stone-work, with respect to the strength and duration of the structure. Let us see now what further motives there are for the choice of brick rather than stone in buildings that are designed especially for habitations; and I hold the argument to be much stronger here in England in favour of brick than in France, Spain, Italy, or any of those warmer climates where the purity of the air and vicinity of the sun,

* Timber so used should be charred, the charcoal rendering it indestructible.—(Author.)

† Some of the pyramids at Egypt, built during the dynasties of the Pharaohs, about 2200 years B.C., are of brick.—(Manetho.)

‡ Walls of mansions built of brick and cased externally with freestone, are the noblest.—(Author.)

§ Mr. Buckingham found bricks at Babylon united by bitumen mortar, that was impossible to separate without breaking the bricks.—(B.)

brings all sorts of masonry to a quicker perfection than our northern moist country. Now if a healthy situation be essential in the choice of a seat, whenever you would build a house, the next best choice you can make is to build a healthy house in a healthy place, which I undertake to say cannot be obtained here in England, especially if your edifice be composed entirely of stone. When in great buildings that required proportionable thickness in the walls, it is a doubt whether the mortar towards the centre becomes even thoroughly set and cemented. This at least we are sure of, that stone-work ripens (dries) by so slow degrees in comparison with brick, that the one in a year or two may afford a tolerable habitation, while the other in third the time will continue green, moist, cold, and unfit to dwell in; greatly pernicious to the health of the inhabitants, and prejudicial and destructive to all sorts of furniture whatsoever that shall be lodged therein; for as your walls must be thicker in stone than brick-work, which exacts a larger space for the setting of the work, so the stone itself being a material chiefly moist, and ministering nothing to the hardening of the cement, the work will, I say, for aught I know, never be thoroughly set towards the centre, by which means, in all hot seasons especially, unwholesome vapours will break out and perpetually affect the health of the inhabitants.* And this is among my reasons why in point of health, and for the preservation of the ornaments, goods, and household-stuff that go to the establishment of great buildings, which for the most part are very chargeable, I would give the preference to brick buildings.

" I am not against carrying up a great building with stone to the top of the ground, but from thence upwards I would by all means build with brick. The Italians work their brick-work always wet, their mortar being much more liquid than ours, which makes much better work, thereby having smaller joints, driving down every brick with the handle of their trowel till in some part or other it touches the brick under it.† The best way of preparing mortar in the world is what I have already imparted to you; but it is very hard to put workmen out of their road.‡

" All great openings and little piers are to be avoided, for ashlinds and lintels do not suffice to protect the damage that attends such errors, for wheresoever a great weight rests upon a little foot, it will be hardly possible to prevent the parting and cracking of the walls; for wherever great weights rest upon a little foot the materials under it cripple and yield to the burthen. For roofing I prefer oak everywhere, because it is stiff and a timber of long duration, and you are at liberty in the framing to design your work by all the strength of art you please.§ But in flooring, where your timber is laid horizontal, bearing its own burthen, and you have no help or principle to sustain it, I prefer fir, as being lighter and which will sink less by its own weight in great length than oak.‖

" In all doorways or openings that adjoin to chimneys, towers, turrets, or any other burthensome part of the building, remember to let your lintels be higher towards that part than elsewhere, because in a short space all such openings will otherwise become out of square, by reason of the settlement of those weighty parts of the building more than the rest, which this will obviate. Avoid, as much as may be, all sorts of burthens to your building that have not a principle to sustain them; as turrets¶ and lantern-lights framed in the roof over staircases and the like, for such weights as are not sustained from the bottom, and hang, as I may say, by the nail, will, at a long run, sink, settle, and prove prejudicial to the roof, shaking and disordering the covering, begetting leakage and decay in the structure.

" All doorways and openings on the outside of your buildings ought to be of stone and not of timber, not only because there is no solidity or union to be made betwixt timber and masonry, and therefore in time those two materials will part and leave an opening where they were joined together, and so let in the air and the weather; but forasmuch also as the jambs and head-pieces being put in where the work is green do very often share a part of the burthen, and therefore ought to be of a like durable matter with the rest of the building, lest by being of timber, which in time must decay, the taking down the same to repair them may be of ill consequence to the work which it may chance to rest on.

" Chimneys void smoke better by a flank than a back draught, by which means a good deal of weight may be avoided, which in these burthensome parts of the building cannot be too carefully shunned. All plastering upon beams in the ceiling begets cracks. I propose therefore, to avoid these cracks thus, your joists should drop an inch and a half, or thereabouts, below the bottom of your girders,** and then join the ends of your joist with a piece nailed up to the girders of the same thickness with your joist, on which to tack your laths, by which means, the plastering not touching the solid timber of the girder, the cracks will be avoided.

" It is not safe to build too fast; many inconveniences happen by overcharging a green foundation.†† In terrace-walks that are designed to be covered with slate paving-stone,‡‡ the earth is to be made everywhere equal, and then to be well rammed and to stand a winter; then let it be levelled for your purpose, and pitched with good pebbles or flints, being well rammed. This done, lay your flat stones, bedded in good mortar and well jointed, no other way will prevent its being perpetually out of repair. Caution must be had too, that your stone be of a quarry that frost will not touch, otherwise that

* To counteract this, all good houses built with stone have their walls now battened and lathed, on which the plaster is laid.—(B.)

† A house in the south-west corner of Hanover-square in London was built in this way; it is the best and most noted in the metropolis.—(B.)

‡ We find that the best of our houses in England in the reign of the Tudors were built of brick material, out of which all their carved mouldings were formed. See their ornamental clustered chimneys, many of which are existing to the present day.—(Author.)

§ Anterior to this period chestnut was much used.—(Ibid.)

‖ Trussing girders I believe was at this time undiscovered.—(Ibid.)

¶ It is not an unfrequent case to see those objects reclining on one side.—(Ibid.)

** This is the method now practised, but this thickness is sufficient.—(Ibid.)

†† This is a good caution, and it is always advisable to let the carcase of a house, after being covered in, stand for some months to season, exposed to the sun and wind, before the internal joiners' work is begun.—(Ibid.)

‡‡ Terraces not gravelled are now either covered with York-paving or Asphalte composition, from a mineral rock of Pyrimont Seyssel, a bituminous mountain on the eastern side of the Jura. This substitute, which is manufactured by Mr. Claridge, near Westminster-bridge, has been tried in numerous places and under every disadvantage, with great success, which the author considers to be a great *desideratum* in architecture, on the account of great expense of lead where flat roofs have been required.

will likewise put your terrace continually out of repair. All access to your building by steps or otherwise out of doors, exposed to rain and winter weather, ought to have a sound basis upon brick or other masonry; otherwise the wet gets in, and by degrees carries away the earth or matter on which the work rests, and brings it quickly to decay.

"Drains to carry the water quickly off the ground from about your buildings, ought to be well contrived and as well performed; many a noble structure having miscarried through want of due caution in that particular.

"I think, sir, by this time I have tired you with my general notions in architecture, namely, that part of it which concerns substantials and fundamentals in that science as they have occurred to me, without order or any great connexion. If you had digested your commands into queries, I might have spoken with more propriety, and perhaps more to your satisfaction; and wherein what I have now said may be found defective, I shall more readily and studiously apply myself to supply, and obey you in any future commands according to my humble talents in this science, as being with great obligation and affection

"Your most humble and faithful servant,

"*July* 5, 1695. H. SHERE."

DISSERTATION XI.

ON ERECTING WALLS.

"There is nothing to be left void in a firm building, even the cavities ought not to be filled with rubbish, which is destructive to the strength, but with brick or stone, though of less pieces, yet of the same nature, and fitted to the crevices."—DRYDEN's *Dedication to Virgil's Æneid.*

Having advised as to the foundation of a house, we shall proceed to the superstructure. In the usual way, walls are constructed either of stone or brick, but generally according to the produce of the spot, or convenient circumstances of carriage; the former is generally adopted in the country, the latter more generally in towns. Stone is sometimes raised near the spot, and in other places where brick-earth is found, bricks are made. In noblemen's houses the walls on the exterior are sometimes faced with Portland or Bath stone, from five to six or eight to nine inches thick, the inside part being formed of brick; these are decidedly the best walls,* and present the most handsome appearance; but since the discovery of Roman cement, our brick dwelling-houses are now more generally compoed over, and thus made to assume the appearance of freestone. On erecting stone walls, care must be taken that they are carried up sound; that is, by causing the stones to have a proper bed and bond, and the middle of the walls built in solid as the work proceeds; for in thick walls the masons are too liable to fill them up with dry rubbish. As the solidity of the walls depends so much upon the goodness of the bed of the stones, as they lie on each other, the mason should speedily shape out the stones for the building as soon as possible after they are taken out of the quarry, as they are then in a softer state than they will be after being some time dug up and laid in the sun. The digging of stones in summer and exposing them to the air, is a kind of seasoning for opposing the winter frost; and they are not then so liable to crack in the walls as when laid fresh and new. An Italian architect advises that all stones laid in the walls, and other essential parts of a building, should be taken out of the same quarry; and he has great reason for that caution, for if an architect desires to see his work uniform, there is no better way of assuring himself of that part than by care in these principal materials.†

* The Bath stone is very beautiful, but not so durable as the Portland, and the bed should always be marked at the quarry, which is of the utmost importance, for unless the stones are laid in the building the same way as they lay in the quarry, they will be liable to split asunder and fall off after being placed in the walls. Stones so laid on edge in the walls are called a shelering: each is cramped to the walls, and there are occasional bond-stones which go through the wall. The cramps are made of cast-iron, copper, or lead; wrought-iron will not do, this will rust and split the stone. The Greeks built their walls of solid marble, the Romans cased theirs with the same material.—(B.)

† There are various kinds of building-stones in different counties of England besides the Portland and the Bath. There is the Bromley fell-stone and the Whitby stone, both in Yorkshire; granite, limestone, and red sandstone in Devonshire;

In regard to the construction of brick-walls, it is necessary to state, that there are two general methods of arranging the bricks in the face of the wall; one is called the old English bond, which is formed by a course of stretchers, and then a course of headers above, and so on alternately: a wall of this kind is remarkably strong. The next is what is known as the Flemish bond, that is one header, and then a stretcher laid along in every course, breaking the joints below. This bond is more generally adopted in London, on account of its very neat appearance to the eye when finished. In building brick-walls, it is necessary for us to observe, that in summer the bricks should be laid as wet and in winter as dry as possible, for this is the way to make them adhere well together with the mortar. In winter, if the frost and rain set in, the walls should be covered up, for rain washes out the mortar from the joints, and is a great enemy in destroying the strength of the mortar before it is dry; frost is still worse. In all cases let the builder take care that the angles of his walls be well bonded and united together, for if the walls around the whole building be not brought up at the same time, they will never keep well together. He is also to remember, that every part of the building should be raised equally at the same time, raked back at the raised angles, but not toothed, that the walls may all settle equally in every part, and there be none of those cracks and clefts to be seen which are so great a blemish in a building, and a scandal to the builder.*

The ancients sometimes built their walls with brick and stone mixed together, at other times in alternate courses; and by the remains that are yet extant of their several works, we find they had various ways of constructing walls. Their chequer-work or reticulated wall was at one time famous, but went out of use sooner than the others.† This formation consisted of a number of courses of

rag sandstone in Kent; and argillaceous freestone in Dorsetshire. In Northamptonshire there is a greenish-coloured stone. In the more northern counties there is a brownish kind, full of little spangles that will glitter in the sun.—(My Memorandum Book.)

* Bricks, says Dr. Whitaker, were probably made by the inhabitants of the antediluvian world, as they were very early made and used at Babylon in the first ages of their descendants. "And they said one to another, Go to, let us make bricks and burn them thoroughly." (Genesis, xi. 3.) The art therefore would be carried away by the several parties from Babel upon the dispersion of the whole into all the countries they successively planted. The Babylonish bricks, which were of a large size, have been found to be of two kinds, the sun-dried and oven-burnt. The palace of Semiramis at Babylon, which consisted of three squares, was built of well-burnt bricks, upon which was portrayed before burning, all sorts of living creatures, drawn from the life, and chiefly represented in various colours.—(Diodorus, b. ii. c. 3.)

The use of crude bricks baked in the sun, in the time of Moses, was universal in Upper and Lower Egypt, both for public and private buildings. These simple materials were found to be peculiarly suited to the climate, and the ease, rapidity, and cheapness with which they were made, offered additional recommendations. In this country all the dwelling-houses and every other kind of building, except the temples, were of crude brick; and so great was the demand, that the Egyptian government, observing the profit which would accrue to the revenue from a monopoly of them, undertook to supply the public at a moderate price, thus preventing all unauthorized persons from engaging in their manufacture; and to guard against it, their bricks were stamped at the time they were made with the king's name. (Wilkinson's Manners and Customs of the ancient Egyptians, vol. ii. p. 96.) In the British Museum are to be seen several Egyptian sun-dried bricks, some made of clay and others of clay and straw, of the following dimensions, 1 foot 4 inches, 4 feet 6¾ inches high, 5⅜ inches thick to 11¼ inches high, 5½ inches broad, 3⅞ inches thick, stamped on the upper surface with the prenomen of Amenôf or Amunoph III. (Memnon), A.C. 1692—1661; of Rameses III. (Sesostris), A.C. 1565—1499; of Rannofre, a deceased prophet-priest.—(B.)

In countries where the sun is powerful and it seldom rains, the former is practical. In Chaldea not for eight months together is there any rain, and occasionally not for two years and a half. (Archæolog. x. iv. 58.) In Egypt a continued storm of heavy rain during a whole day and night would be a rare occurrence; but showers fall about five or six times in the course of a year at Thebes. (Wilkinson's Thebes, p. 75.) Accordingly it appears that bricks were known to the ancient inhabitants of the East and West in general; and probably known, though it does not appear, to the colonists of Britain, particularly through their brethren of Gaul. The Romans seem to have had a brick-kiln at every stationary town in Britain. Their clay has been generally found to be well tempered and well kneaded, beautifully red, and completely burnt; and their bricks were about sixteen English inches and three quarters in length, and eleven inches and one quarter in breadth. But the Romans of the first century never raised up structures with these materials, because they wildly supposed a wall that was merely the length of their brick in thickness to be unequal to the support of a single story, of which their houses were then composed.—(Whitaker's History of Manchester, b. i. c. 10.)

† In China their brick-walls are all built hollow, which on account of its cheapness has lately been attempted to be

bricks being laid diagonalwise, and about every two feet and a half three straight courses of the same material to bind the work together. The inward part of the wall was made of flints and cement and the facing chequered. The common brick-walls were built on two sides with good bricks, and the middle filled up with brickbats and mortar well laid and bedded together. These cement-walls were composed of tessera, pebbles, and tenacious earth, laid in a rough manner: sometimes walls were built with mortar, and at other times even without, where stones were of a large size.* The angles were strengthened by courses of brick or squared stones, and occasionally brick bond-courses were adopted to bind the wall together. Their rustic-work walls were built of rough and irregular stones of various forms and sizes, which they fitted and laid together as evenly as they could. There was a triangular-groove rustic-work in fashion among the Romans, and a square-grooved rustic-work among the Greeks, chiefly adopted in the basement story of their public edifices; such we find is that of the Lantern of Demosthenes at Athens. Their regular stone walls were made of large and small stones, cut and squared, and laid alternately with great taste. Sometimes a course of larger and a course of smaller ones were laid over one another. This was a wall of great beauty and strength.† The walls erected by the Mameluke kings of Egypt were formed of horizontal layers of alternate black and white stone, which gave them a picturesque look.

All the above walls derived their names from the form and manner of their construction. For the latter, they made a kind of oblong coffer of boards as wide as the intended thickness of the wall; and into this mould they threw rubble stones, cement, and tenacious earth promiscuously, beginning first with a course of stone-work for a foundation, and after that, at every two feet, a course of brick-work was laid to bind the work together. In this way pise-walls are built, and such, it appears probable, was the practice in some parts of Asia.‡ Their bitumen or slime-mortar, which

established in England, but the difference of climates is too great.—(See Sir William Chambers' Chinese Architecture, p. 11.)

* As to the largeness of stones, we may remark, that some of astonishing size were certainly employed in the ancient structures of Syria. Thus in the sub-basement of the great temple at Baalbec, (which was probably much more ancient than the now ruined Roman superstructure,) Irby and Mangles measured a stone sixty-six feet in length by twelve in breadth and thickness. (Travels, p. 215.) And Wood, in his account of the same ruins, confirms this observation, and takes notice of stones which he found cut and shaped for use in a neighbouring quarry, one of which measured seventy feet in length by fourteen in breadth, and fourteen feet five inches in depth, containing fourteen thousand one hundred and twenty-eight cubic feet, and which would, if of Portland stone, weigh one thousand one hundred and thirty-five tons.

The stones in the walls of Solomon's Temple, which, according to Josephus, were white, were also of an immense size, to which the attention of Christ was drawn by one of his disciples, who then foretold that they should be thrown down, and not one stone left upon another, at which they were greatly astonished on account of their immense magnitude. (Mark, xiii. 1, 2.) The stones of this temple are generally supposed to have been brought from Lebanon, though no mention is made of it. The stone of those regions is described by Shaw as hard, calcareous, sonorous, whitish, like freestone, and disposed in strata variously inclined; and has nearly the same appearance throughout Syria and Palestine, and is still used for building. (A.) As an antiquity, a stone may be seen in the porch of Stepney church, near London, having the following inscription, "In Carthage wall I was a stone."

† The Cyclopean style of masonry at Tyrus and Mycenæ, the latter mentioned by Homer, is characterised by huge stones, of which the interstices are filled with those which are smaller. This is precisely the same method as is now practised in the west of England. The polygonal style, where the larger stones are made to fit into each other, is of a later date. In the construction of walls in the Cyclopean style of the first period, even these chasms and interstices were deemed disgraceful. The polygonal style of hewing the angles of the stones to fit each other was the second order, and came in with the age of Epaminondas, 370 years B.C.; and last of all, hewn stones made square in regular courses, and laid with mortar, about 146 B.C.—(Dodwell's Greece, pp. 151, 152.)

‡ Whether so or not, it is certain that the dwellings of the mass of the population, that is of the humbler classes, throughout Asia, are still, and always have been, of clay or mud. (See Job, iv. 19.) The dwellings which come within this class are of three principal sorts, the first formed by a framework of hurdles or wicker, daubed thickly with mud. In the second, the walls were composed of successive layers of trodden mud or clay, each being left to dry (which it does rapidly) before another layer is spread upon it. The third is built with sun-dried bricks, that is, cakes of trodden clay or mud, fashioned in a mould and dried in the sun: straw is usually mixed with them in order to strengthen them; but the poor peasantry generally have no straw, or very little, in the sun-dried bricks, or more properly mud-cakes, with which their humble dwellings are built. In ancient times we have observed that structures of a far higher class were built with the same materials.—(A.)

was inflammable, was much better than ours; of this we have had abundant proof in their walls, which, though no trowel was used, and where the force of the water has been great, the most uneven stones have been held together, and still resisting the attacks of three thousand years.*

The double brick-wall, formed with cement and brickbats between, is very strong and durable for public buildings, having been adopted in the still-existing Pantheon at Rome, built in the time of Agrippa, and also in the Baths of Diocletian. We have examples of grouted walls in the early Amphitheatre at Verona, and the walls of Præneste afford an instance of the rustic and the squared stone-walls, which are to be seen in the remains about the temple of Augustus, as well as of the antique coffer-work kind.†

DISSERTATION XII.

ON CONSTRUCTING CHIMNEY-FLUES.

"Should the chimney of a house, for want of previous consideration, be found to smoke, no afterthought will compensate this want of forethought. And he who has begun in this manner, can only expect to have the ill construction of a chimney to combat with, which it is often impossible to alter."—Dr. Franklin.

In most things relating to a building, we may refer the modern architect to the practice of the ancients, for examples and models by which to guide and improve; but in the article of chimney-flues we have not that resource; for at the time Vitruvius, the father of architectural history, wrote his treatise on civil architecture, in the reign of Augustus, we find the Romans had no chimneys in their houses, nor flues in their walls; they had only stoves which produced smoke in the rooms, and for this Vitruvius advised the architect not to have much carved work in his internal cornices, for fear the smoke should settle on them and produce a blackness. That the Romans had no chimneys at that time may seem surprising, as architecture was in its zenith at Rome during the empire; but it must be remembered they lived in a warmer climate than ours. Their stoves were placed against the wall, with a hole in the same for the emission of smoke, while others were placed in the middle of the room (where the house was but one story high), and the smoke then escaped at the top through a louver. In some houses there was no other fire kept but in the entrance or great hall.‡ The earliest account of a chimney on record, is that in the Hebrew Prophet Hosea, xiii. 3; but the word ארבה, arubeh, rendered chimney, means any kind of hole or opening, and particularly a window. The only thing in the East that approaches to a chimney, is a funnel above the fireplace to conduct the smoke out of the rooms. A structure rising above the roof for the same purpose, and to increase the draft, is not known, nor is the other much in use. There is therefore no evidence of the existence of a chimney in ancient times; certainly

* The bitumen used for joining the bricks in the wall at Babylon, so cemented the bricks together that the brick parted before the mortar.—(See Buckingham's Travels in Assyria.)

† The English mortar is composed of lime and sand, but there are two kinds of lime and two of sand in general use. The first of the limes is that of calcined rock, the second that of chalk; the rock-lime is the strongest, and the heavier the stone the better the lime; but the lime itself when burnt should be light. The river-sand is the best for stone-wall mortar, being the strongest, while the pit-sand is too fine, and needs washing to clean it of impurities; but this will do for brick-work and plastering: good building-mortar is that which is composed of two bushels of sand to one of lime.—(R. B.)

‡ It is worthy of observation, that the statues of the ancients of the great Roman families, which were placed in the atrium or hall of their houses, where a fire was constantly kept, were termed fumosæ, from their being covered with soot; and that the name of the atrium itself was derived from the same circumstance.—(Count Stendall's Sketches of the Present State of Society and Manners, Arts and Literature in Rome, Naples, and Florence.)

none occur at Pompeii or Herculaneum: they employed charred wood or wood that emitted no smoke, or let the smoke escape at the windows or at holes made for the purpose.

The first account of a chimney in Rome was in 1368, and is thus related: "A Paduanese nobleman, named Francesco da Carraro, when he paid a visit to Rome, being lodged at the sign of the Moon, an inn of note, found there that the fire was kindled, according to the universal custom of that city, in a brazier placed in the middle of the room, whereupon he sent for workmen, and caused two chimneys to be constructed in the manner of those in use at Padua."* Over these chimneys, being the first ever erected in modern Rome, he placed his arms as a memorial of that event.† In the present day, throughout Spain and Portugal, no houses possess any chimney but that which belongs to the kitchen; and when it is found necessary to warm other apartments, a fire of charcoal is placed in the centre of the room in a brass pan, termed a *brazero*. This custom is indeed as old as the times of the Greeks and Romans, who had no other means of warming their apartments, until the former invented flues which conveyed the smoke underneath, which is still practised in the greater part of Greece.

As to the ancients being acquainted with the use of chimneys, it is a question that has occasioned much learned controversy, but after the closest examination it appears to be clearly decided in the negative. On this subject some will doubtless recollect the description of the inn, mentioned in Horace's account of his journey from Rome to Brundusium, as one proof among many that the houses were not then provided with chimneys.

> "Tendimus hinc recta Beneventum; ubi sedulus hospes
> Pæne, macros, arsit, dum turdos versat in igne:
> Nam vaga per veterem dilapso flamma culinam
> Vulcano, summum properabat lambere tectum . . ."—*Lib.* i. *Sat.* 5.

Thus we see the most essential improvement in architecture during the important ages, which had been missed by the sagacity of Greece and Rome, were chimneys. Nothing apparently can be more simple than the chimney-flue, yet the wisdom of the ancient times had been content to let the smoke escape by an aperture in the centre of the roof; and a discovery, of which Vitruvius had not a glimpse, was perhaps made, in this country, by some forgotten semi-barbarian. It is not till about the middle of the fourteenth century that the use of chimneys is distinctly mentioned in Italy, nor till the sixteenth in England in dwelling-houses, although they are found in several of our castles which bear a much older date.‡

Many of our early ancestors lived at home amid smoke and dirt, either of which, at least, to the poorest among us, would now seem intolerable; yet the Anglo-Saxon nobles, those who had ten thousand vassals or slaves at their command, lived in habitations sordid with smoke and affecting

* We are told they were known at Venice in 1347, and that in an earthquake which then happened several were thrown down.—(B.)

† Beckman's History of Inventions.

‡ Muratori, Antich. Ital. Dissert. xxv. p. 390. Beckman in his History of Inventions, vol. i., a work of very great research, cannot trace any explicit mention of chimneys beyond the writings of John Villani, wherein however they are not noticed as a new invention. Piers Plowman, a few years later than Villani, speaks of a "chamber with a chimney," in which rich men usually dined. But in the account-book of Bolton Abbey, under the year 1311, there is a charge, pro faciendo camino, in the rectory-hand of Gargrave. (Whitaker's Hist. of Craven, p. 331.) This may, I think, have been only an iron stove or fire-pan, though Dr. W., without hesitation, translates it a chimney. However, Mr. King in his Observations on Ancient Castles, (Archæol. vol. vi.,) and Mr. Strutt in his View of Manners, vol. i., describe chimneys in castles of a very old construction. That of Conisborough, in Yorkshire, is peculiarly worthy of attention, and carries back this important invention to a remote antiquity. Chimneys are still more modern in France, and seem, according to Paulmy, to have come into common use since the middle of the seventeeth century. "Jadis nos pères n'avoient qu'un unique chauffoir qui étoit commun à toute une famille, et quelquefois à plusieurs." (t. iii. p. 133.) In another place, however, he says, "Il parît que les tuyaux de cheminées etoient déjà très en usage en France." (t. xxxi. p. 322.)

their eyes. Of this we have an instance handed down, of a Gaul, who not admiring the warlike Romans, even refused to quit his melancholy abode for the gilded, arched ceilings of Rome, where chimneys, though not flues, were then at least become more in use.* Fireplaces in walls certainly appear to have been introduced into England by the Normans, unless Conisburgh Castle, in Yorkshire, where they appear, can be proved to be of Saxon origin, which I very much doubt. In Rochester Castle, one of the finest examples of the style of architecture of the Anglo-Norman era in the kingdom, built by Gundulph about the year 1088, twenty-two years after the conquest, the rooms have all fireplaces but no chimney-flues, the vent for the emission of smoke being merely a hole formed in the external wall immediately above the fireplace. The walls are here of an enormous substance, being twelve feet thick, with all the fireplaces recessed.†

The first account we have of a chimney-flue in England is given by Leland, and quoted by Mr. Fosbroke in his Encyclopædia of Antiquities. Speaking of Bolton Castle, built temp. Richard II., he says, "One thynge I much notyd in the haulle of Bolton, how chymneys were conveyed by tunnels made on the syds of the wauls, betwyxt the lights in the hawel, and by this means, and by no covers, is the smoke of the harthe in the hawle wonder strangely convayed." Chimneys, it appears, were at first formed by describing a hearth (either recessed in the wall or covered with a projecting canopy), where the fire was made, and from whence the smoke was discharged through an aperture in the wall at the back, just above the mantle-tree.‡ Down to the reign of Elizabeth we still find, with the exception of the monasteries, the greater part of the houses in considerable towns throughout England had no chimneys; the fire was kindled against the wall, and the smoke found its way out as well as it could by the roof, the door, or the windows. Harrison, who wrote his History of England at this period, notices it: chimneys, however, were then beginning to increase.§

In the present day the necessity of chimneys is so absolute, and the inconvenience that frequently attends them so great, that nothing more essential regards the profession of the architect than their proper construction. Fires are necessary, and we wish the smoke to pass off freely. At present the decorations of an apartment are not unfrequently injured in three or four years, simply by the smoke refusing to ascend the chimney, and vertigo and headache seem as prevalent as ever:‖ against

* He wrote to the emperor thus: "You blame me for preferring my house at Tours, sordid with smoke, to the gilded arches of the Romans: I would say, with your leave, that swords hurt the eyes more than smoke. Contented with a smoky house I remain here in peace."—(Ep. xiii. p. 1507.)

† Lambard's Perambulation of Kent in 1570.

‡ That chimney-flues or shafts were not known in England from the tenth to the thirteenth century, may be presumed from the contrivance of the custom of the curfew, which arose in what are termed the middle ages. At that time fires in the great hall of the houses were made in a sunk place in the centre of the floor, directly over which in the roof, there generally was an opening lantern or louver for the escape of the smoke, like that on Westminster Hall, built as it now stands, in 1398, temp. Richard II.; and when the fire was put out and the family retired to rest, the place in which it had been made was closed by a cover. A cover of this description is engraved in the Antiquarian Repository, vol. i. p. 89, and is there called a curfew. In these early days a law was almost universally established on the continent, that fires should be extinguished, and the family all at home at a certain hour of the evening, which was noticed by the ringing of a bell. That in this country was called the curfew, which was evidently derived from the French *couvre-feu*, and in Yorkshire called by the inhabitants coal-fire. This law was introduced into England by William the Conqueror, to prevent nocturnal assemblies of the people; and although it was abolished in the following century by Henry I., it yet remained in force long after throughout many parts of Europe. This ancient custom is supposed to have given rise to a saying still used in Saxony when a couple wish to separate, "that they hear the burgher-bell."—(Echerd's History.)

§ There are old men, says he, yet dwelling in the village where I remain, who have noticed three things marvellouslie altered in England within their sound remembrance. One is the multitude of chimneys latelie erected, whereas in their young daies there were not above two or three, if so manie, in most uplandish townes of the realme, (the religious houses and manour places of their lords alwaise excepted, and peradventure some great personage,) but each one made his fire against a reredosse in the hall, where he dressed his meate and dined. (Harrison's History of England.) In a manuscript of Aubrey's in the Ashmolean Museum, of the date 1678, of Charles II., it there says, "Anciently, before the Reformation, ordinary men's houses and copyholders, and the like, had no chimneys, but flues like beaver holes; some of them, says he, were in being when I was a boy.—(A.)

‖ In a country which is frequently moist and cold, and whose inhabitants, by the progress of civilization, have become

this the effect of the wind is very great, therefore, to be on our guard and secure every advantage in that respect, the architect must have this in his mind from the first commencement and construction of the building. Let him well consider the nature of the local situation of the house as to hills, and from what quarter the wind most frequently blows or acts on the spot, and according to this consideration place and construct the fireplaces accordingly. This requires a much earlier consideration than architects usually give it for providing against smoky chimneys; and their not taking this precaution in time is one of the principal reasons why the fault is so difficult to be remedied afterwards.

The common causes of chimneys smoking are, either that the smoke is checked at the bottom by the flue being carried the wrong way, or not being made sufficiently spacious to allow a free passage and therefore soon choked up, or having too sudden turns in the funnel, or the wind is too much let in above at the mouth of the shaft; but more frequently the smoke is stifled below; and sometimes there is not a sufficient draft of air at the bottom to carry it up. At other times some high building, trees, or great elevation of ground adjoining the house is the source of the mischief; or the room in which the chimney is situated may be so confined or close, that there is not an ingress of air sufficient to drive the smoke up the flue. When the architect has thus made himself acquainted with the several causes of the smoking of the chimneys, he will then know by what means he may most satisfactorily obviate such nuisances, and how he may remedy the defect, or avoid it in his new erections. When the cause is not properly considered, where a chimney smokes, the cure is in vain expected, and it is no uncommon thing to see much labour and expense bestowed perfectly in vain, because the fault is misunderstood.*

As smoky houses are an evil, and the greatest misfortune that can attend this division of architecture, I have set out in this place with its causes, and we shall now caution the young architect to guard against it by a proper disposition and management of the rooms where the fires are most commonly kept up; a proper situation of the doors, windows, and fireplaces, and a judicious construction of the chimneys themselves. We have seen that the two great causes of the inconvenience are the smoke being driven back, and that the occurrence is either from above, or the lingering of the smoke in the flue, from some error within, either in the ill-construction of the flue itself, or of the bad draft from the room where the chimney is situated.† But much depends upon the opening of the chimney or fireplace itself, which is frequently badly shaped, so that the smoke is naturally checked at the first setting out, and missing its way returns and gets into the room. And again, if the opening of the fireplace be too large and high, the same thing occurs, because there being too

chiefly an in-door population, the hearth and the domestic chimney must be of the very first importance. We are all as much entitled to comfort in this respect as we are to life itself; and yet so little is the improvement in the management of fireplaces which has been made during the last two hundred years, though during that time, from diffusion of literature and the peaceful state of our country, we have become a complete fireside nation, that it may be doubted whether any substantial benefit has been effected in the health and comfort afforded by our chimneys.—(B.)

* There is perhaps no greater mistake than supposing smoky chimneys were unknown before our times, and that the unsightly contrivances on their tops, frequently abortive, are the notable inventions of the present day: unskilful and unpractised architects and ignorant builders have existed in every age. From the first introduction of flues smoky chimneys have always been proverbial nuisances, although from obvious causes such complaints were infinitely fewer than they are now. Sir John Haryington, in his humorous tract "The Metamorphosis of Ajax," written towards the close of the sixteenth century, mentions and describes the cowl now in use, though nine cases out of ten where applied it proves a useless remedy. The invention belongs to Jerome Cardon, an Italian, who resided for some time at the English court, in the reign of Edward VI.—(Architectus)

† If a pipe made of tin be brought through the external wall, carried along behind the skirting and up the chimney-pier, but concealed, and the mouth brought in behind the mantel of the chimney-piece, a draft will at once come in and carry up the smoke, which if brought into the chimney-flues in the direction of the bend will never fail of a cure. In many cases a funnel-flue behind the grate will have the desired effect.—(R. B.)

much room for the cold air, by the wind above the smoke will be driven into the room; besides, by this formation the draft will be but little. Avoid having chimney-flues perpendicular, but carry them up in gentle windings, and the most curvature particularly near the top of the wall, before the flue enters the shaft. All angles and sharp turnings are obstacles to the smoke's ascending upwards; for this reason the internal surface of the flues should be rendered smooth with proper mortar. It is for this reason also that barrel or circular flues permit the smoke to pass off more freely than square ones.

The mouth of the chimney, or that part which joins the back, should be made a little narrower than the front; this will form a check against the smoke when beating down the flue, for meeting with that resistance it will generally return back; indeed, making the funnel narrowest at the bottom is a very great object in preventing the chimney from smoking, as this also assists the draft, and the smoke gets easier up in consequence of the space becoming all the way wider as it ascends, and the wind comes down with greater difficulty where the space contracts in a descending order. But this precaution, which is well adapted for houses surrounded by hills or low chimney-shafts, must not be carried to extreme in the larger mansions, for the smoke will then linger in the upper part, and all the force of the draft below will not be sufficient to force it up. It is also a very material point to contract the mouth of the chimney gradually from the fireplace into the flue, and to consider well the first bend of the funnel, whether it should turn off to the right-hand or the left, as it must be either one or the other to avoid the fireplace in the room above; but this must always be laid down as a rule, if the door of the room is at the left hand of the fireplace then the flue must be turned off to the right, and if the doorway be to the right hand, then the flue must go off to the left. This will then be leading the smoke off in the right draft or current of air which enters at the room-door. If any peculiar wind is likely to affect the chimney or the smoke in escaping at the top, the first bend should then take the opposite direction, that is, where the chimney is most exposed: suppose to the east wind, then let the bend or angle incline to the west, but if to the north *vice versâ*. We often observe smoke return into the room of a morning when the fire is first lighted, and suppose the fault to be in the chimney, but this arises from the cold air in the flue, which prevents the smoke getting up till the chimney is warmed and the air in it rarified.

DISSERTATION XIII.

ON THE DIFFERENT CHARACTERS OF CHIMNEY-SHAFTS.

"Look to the tower'd chimnies, which should be
The wind-pipes of good hospitalitie."—Bishop Hall.

In taking a view of the various component parts of architecture, we see them rising from the simple form to the more complex, and the plain gradually becoming more and more enriched; but in the chimney-shafts, from their appearance in the time of the Tudors, they sprang up at once in all the exuberance of ornament.* With that royal race they are supposed to have come into use, and with

* Clustered chimneys might have been known in the reign of Henry VI., Plantagenet, as we find them in Eaton College, a building commenced by that monarch in 1441, though not finished till the year 1523, in the reign of Henry VIII. Some parts of Eton College are built of brick, which at that period cost tenpence the thousand; other parts are constructed of Caen stone, brought from Normandy, which when delivered on the spot was eleven shillings per ton. From a MS. in the British Museum, we are informed that carpenters' and masons' wages were then sixpence a-day, and those of labourers twopence. Most of

them began to decline in decoration and taste, to which succeeded the Stuart style. The clustering of the shafts did not wholly disappear at the commencement of the Stuarts, as we see in Holland-house, at Kensington, built by Sir Walter Cope in 1607, during the reign of James I.;* yet the forms were changed and at once became unadorned, and those which before had been polygonal while others were circular, were now formed in diagonal stacks, and the shafts finished in plain brick-work. Square parallelopiped shafts were also introduced, but many were turned anglewise and clustered together. Four or more polygonal sides were also seen springing from a square pedestal, but united at the top by a transum-band or string-course; at other times the shafts were united at the top by the intersection of the cornices, which were formed of brick-work, thus preserving the more simple but still picturesque appearance, which prevailed in the previous reign.

The rise of these florid embellishments in the Tudor chimney-shafts, and of the endless variety even in the same stack, has been a source of speculation among the antiquarians to this day;† but nothing can be more obvious, than that they derived their origin from the Norman pillars, for their prototype may plainly be seen by a discriminating observer in the colonnade of the cathedral church at Durham, at Rochester, and in several of the monastic edifices of that day, such as that of Waltham Abbey, and in the still more beautiful Apprentice's Column in Roslin Chapel, near Edinburgh. It is but reasonable to expect that the architects of these manor-houses, which were built in the early period of the Tudors, and composed from the monastic edifices, would also select from the same objects the form of their chimney-shafts; and what are those shafts but so many little Norman pillars, with caps and bases, and their shafts carved into chevron and zig-zag work, further embellished with Tudor insignia, as the rose, the fleur-de-lis, the pomegranate, &c.? At Isenhampstead Cheneys, in Buckinghamshire,‡ there are the most beautiful and florid examples now remaining; some of those shafts are hatched in imitation of a pine-apple or fir-cone, others have zig-zag billets running up the shafts, while others are enriched with serpentine-formed fillets, by which we are reminded of Hogarth's line of beauty. These hexagonal shafted chimneys are also further ornamented with quatrefoils, and several are enriched with a labyrinth of lacework-form, lozenges, polygonal figures, and other devices raised on their external surface. The base mouldings are in the Gothic character, while the capitals are strangely formed in the Tuscan style, crowned on the top by aris-fluted abacuses, resembling a section or portion of the Doric shaft. The whole of these ornamented stacks rest on the tops of square pedestals; some are clustered in three and others in six shafts.

our old buildings, we may remark, from the Conquest down to the end of the fifteenth century, were constructed of stone from Caen.—(B.)

* The Cope family are very ancient; Sir Anthony Cope, of Hanwell, in Oxfordshire, was created a baronet 29th June, 1611. The survivor of the family, Sir John Cope, at whose death the title becomes extinct, now resides at Bramshill in Hampshire, the most princely mansion of the Stuart style in the kingdom. It was intended as a residence for the accomplished prince Henry Frederick, eldest son of James I.

† At East Barsham-hall, or Walterton Manor-house, in Norfolk, there is one of the most interesting specimens of domestic architecture of the reign of Henry VIII., consisting of a stack of ten chimneys—the most curious remaining part of the mansion, all the bricks of which this cluster is composed being moulded in a great variety of forms.—(Bloomfield's History of Norfolk.)

‡ Isenhampstead was a royal palace at which King Edward I. and King Edward III. in the early part of their reigns resided. From the Cheneys the manor passed to the Sapcote family, pursuant to the will of Agnes Lady Cheney, in 1494: it is now the property of the Duke of Bedford, whose ancestor, Sir John Russell, afterwards Earl of Bedford, who was comptroller of the household to King Henry VIII., was created Lord Russell of Cheney, 9th of March 1538: he rebuilt the manor-house, and made it his principal seat. A considerable part of the house, with the original porch, is still standing; the style of architecture, particularly the clustered chimneys with ornamented shafts, is highly curious and interesting. Few such excellent specimens of enrichment in brick-work now remain in the kingdom. It has long been deserted by the family for Woburn Abbey, and is the residence of the duke's principal tenant on this estate: the house is described by Leland in his Itinerary as newly set up, made of bricks and timber.—(Moule's English Counties.)

The chimney-shafts during the Tudor period were frequently erected in the external walls in the piers between the windows, which may still be met with, but is a very injudicious situation. Placing the stacks in the middle of the body of the houses in the country, where the edifices stand detached, and in the party-walls in towns, is now a great improvement. A new method of decorating the chimney-shafts took place in the reign of Charles II.; that of carrying up the shafts square, but still clustering and separating each flue by a groove or aperture between, which rendered their appearance rather pleasing, by producing a line of light betwixt each shaft: many of these chimney-stacks were built of Flemish bricks, which were brought into this country by the Dutch as ballast, now known as Dutch clinkers. Some of the chimney-shafts alluded to may be seen at Topsham in Devonshire, where many of the Flemish merchants at one time resided.*

Within the last century, the chimney-shafts of our dwelling-houses have assumed another character, that of having small open arches turned between each stack of four or more chimneys in the Italian character. These clustered shafts are sometimes to be seen divided by one or more arches, dividing the stack, on each side of which are two, four, or more flues. Where the crown of the arches is a foot or more below the side-shafts, they have a very picturesque appearance, and over some of those arches there is a pediment built, which has a good effect. This manner of finishing chimney-shafts is peculiar in many parts of Italy and Lombardy. There may be seen chimney-shafts of this kind in houses in the Regent's-park, London, and a great variety of chimney-shafts on the Bank of England, and on the new Treasury at Whitehall, erected from designs by Sir John Soane, which give great beauty to the summits, as well as a pleasing effect. Nevertheless, we have to lament a depravity of taste which we too frequently witness, that of the Tudor chimney-shafts erected upon Italian structures, turning the whole building into a heterogeneous jumble of styles by not according with the house.

DISSERTATION XIV.

OBSERVATIONS ON APPROPRIATING CHIMNEY-PIECES TO ROOMS.

"The beauty of the component parts in the interior of a house depends much on their appropriation or fitness the apartments."—PALLADIO.

Although fireplaces were in use long before the art of constructing flues or forming funnel-walls for carrying up the smoke were known, their number was still very limited, even in great houses, so late as the sixteenth century. A chamber with a chimney was then a distinguished apartment;† one of the halls at Oxford was formerly called "Chimney-hall," from having such an accommoda-

* Very little appears to be known with regard to the proportion of chimney-shafts, beyond that they require to be of considerable height where the house is situated in a low place; which discovery was made by the Tudors, and at a time when we find the best and handsomest chimney-shafts were erected. Now in classical architecture, where notions are founded altogether in error, the height of the chimney-shaft is frequently depressed, and to carry off the smoke all manner of uncouth earthenware and iron objects are placed above, to the disfigurement of the dwelling-house. All the expense which is frequently so absurdly, and with such ill-success, expended in the concealment of chimney-shafts, should be rather used in ornamenting and in rendering agreeable those members so necessary to the comfort of our domestic buildings.—(A. B.)

† In 1574, Elizabeth, intending to visit Archbishop Parker's palace at Croydon, Bowyer, a gentleman of the black rod, was sent there to prepare for her majesty's reception. He reported that he did not know "where to place Mr. Hatton; and for my Lady Carewe, here is no place with a chimney for her, but that she must ley abrode by Mrs. Aparry, and the rest of the privey chambers. For Mrs. Shelton, here is no rooms with chimneys."—(Ducarel's History of Croydon.)

tion.* According to Leland, chimney-pieces are of recent invention; some, it appears, were set up for the purpose of commemoration. In the outer ward of Pembroke Castle, says Fosbroke, in quoting Leland, "I saw the chamber which King Henry VII. was born in, in knowledge of which a chimney-piece is now made, with the arms and badges of Henry VII."

The chimney-piece of the great hall in our feudal mansions was an important feature in the proud baron's house, in which he never failed to display his heraldic insignia, and its great size afforded sufficient space for that purpose: two remarkable specimens, made about 1440, profusely decorated in this manner, are still to be seen at Tatersall Castle, Lincolnshire, put up by Ralph Cromwell, lord treasurer to Henry VI. In one of them are no fewer than eleven coats, referring to his pedigree, and eight compartments filled with purses, his badge of office. Nor were the chimney-pieces at this time less splendid in their architectural embellishments. The deficiency of costly marble was generally made up by abundance of masonry and elaborate carving, while the inferior apartments in most instances had only jambs and arched mantle-trees across the opening, and to support the chimney-breast they were generally massy, and frequently ornamented with masks or rude grotesque carvings on the keystones.

In Queen Elizabeth's reign, the fashion of making chimney-pieces was to have them very large, which ascended nearly to the cornice of the ceiling in the form and fashion of an altar-piece or monument; sometimes wrought in marble, at other times in Norman freestone, with a framed panel above the fireplace, formed in the arabesque style, and terminating with an open pediment, on which was generally placed a bust of some noted personage. The frame always contained a picture either of a view of some remarkable place or an historical subject. There is a chimney-piece containing a picture of this kind still to be seen at Cowdray-park, in Sussex, the frame being embellished with grotesque ornaments.†

In Cymbeline's Palace, the chamber of Imogen had an ornamental chimney-piece of this character and fashion.

> *Jachimo*..... "The chimney
> Is south the chamber, and the chimney-piece
> Chaste Diana bathing: never saw I figures
> So likely to report themselves."—SHAKSPEARE'S *Cymbeline*.

These sort of Florentine chimney-pieces were afterwards very common, and much enriched in the time of Inigo Jones, which he found to be well suited to the Palladian Italian architecture, and the splendid mansions ornamented in that style, which he and his followers afterwards erected in different parts of England. Many of those chimney-pieces had columns, consoles, festoons, statues, terminal heads, musical and military instruments, emblematic enrichments, or carved devices.

In our days no object in a well-finished room is so essential as a good chimney-piece. The eye is immediately directed to it on entering the apartment, and the place of taking a seat is generally near it. We shall therefore now consider the appropriation of chimney-pieces to rooms of greater or less degree. Chimney-pieces are of two kinds; the continued altar one, which has been previously described, being a chimney-piece with framed trophial tablet over; secondly, that of the single ornamented chimney-piece without the trophial part, for the dining and withdrawing-rooms; and the simple plain ones for the dormitory stories. Our chimney-pieces, since the introduction of the Grecian art, and into some houses that of Louis XIV.,‡ have certainly become more chaste

* Warton's Oxford.
† Executed by Hans Holbein.—(Walpole's Anecdotes of Painting, vol. iii. p. 84.)
‡ In the palace at Versailles, about twelve miles from Paris.—(R. B.)

and appropriate, and the enormous heavy mass of the Italian architecture, of which some were composed, discontinued. Beautiful veined marbles have superseded that load of sculpture;* and the richness of the material and the elegance of the design are now more esteemed than the chiselings of the carver. The following should be the arrangement of marble chimney-pieces in all good houses. In the dining-room black and gold-veined,† and if carved, to be imitations of fruit. The breakfast-room dove-coloured marble, and the library verde-antique, with figures of the muses or a divine with a book in his hands. In the drawing-room statuary marble, with carved-work in imitation of flowers; and in the bed-rooms veined marble. The servants' sleeping-rooms may be of common Devon, or Derbyshire marble, and the basement story of Portland stone.

DISSERTATION XV.

ON THE DESIGNS AND SITUATION OF STAIRS.

"Stairs appear at first to have been erected on the outside of buildings, and founded upon the principle of the spiral line; such was the inclined plane to the staged pyramid of the temple of Belus at Babylon, erected soon after the Flood."‡ —DURANO'S *Parallel of Ancient Edifices.*

Before the reign of Henry VII., and when the barons lived in castles, the staircases were generally placed in small towers; the steps were of stone or solid oak, winding round a large newel, and the handrail wrought in the material of the wall and recessed: their staircases were generally numerous, being one in each tower, and were called turnpikes. And it was not till the middle of Elizabeth's reign that staircases in England became prominent and splendid features in manor-houses and mansions. The moulded handrails and turned balusters of this period (some of which were spiral) were of gigantic proportions, and presented at once a bold, picturesque, and safe appearance; yet so variously and fancifully were these staircases carved and decorated, that their effect was always pleasing and free from clumsiness.

Describing Verulam-house, the seat of Sir Francis Bacon, built in the above period, Aubury says, "In the middle was a delicate staircase of wood, which was curiously carved, and on the posts (newels) at every interstice (quarter-space) was some pretty figure, as a grave divine with his book and spectacles, or a mendicant friar, and not one twice;" that is, no repetition of the same figure: sometimes a dragon or a lion sitting erect on his haunches on the newel, supporting a banner, on which was a Tudor rose, and on the top of the staff a fleur-de-lis. The handrail was

* There is a very sumptuous and ancient chimney-piece of this kind to be seen in the bishop's palace at Exeter.—(B.)

† The black and gold-veined marble is brought from Italy, and is extremely rich, abounding in a number of gold-veins, like lacework on a black ground. Dove-marble is sometimes used for dining-rooms in houses of the second class; black and gold-veined being expensive: sometimes the English black is used. The statuary or white marble is brought from Italy, and is also expensive. The verde-antique is green with white and black spots, and is brought from Egypt; but there is a fine green marble equal to the Egyptian brought from Ireland. The Sienna marble is not appropriate for chimney-pieces, although it has been used for the purpose, as it is liable to stain; but the Brocadilla is fine and rich, and may be used for the library. The Devonshire marble of Babbicombe is very beautiful and varies in colour, but some of it is porous. Were the architect to visit that little sequestered spot, he would be surprised to find on the sea-beach blocks of marble of every hue and varied colour, lying indiscriminately, as if brought there from foreign countries. Finally, let it be remembered, that the chimney-pieces should always be in the style and character of the house in which they are fixed.

‡ A singular instance of the invention of a spiral staircase is thus related. A Mameluke vizier finding his sovereign, Tooloon, incautiously (as he thought) rolling up a piece of parchment into a spiral form, remarked, it was a pity his majesty had no better employment; upon which the king replied, "So far from trifling, I have been thinking that a minaret built on this principle, with a staircase outside, would have many advantages: let that of my new mosque be erected of this form;" which was accordingly done.—(Wilkinson's Egypt, p. 301.)

large and moulded, the balusters were always turned, and the oak string-boards contained scroll and floral arabesque carvings. The soffits of the stairs were both panelled and carved in the framing, in sunk running guilloche borders, which at this time were very general.*

One more example of this period may suffice. "The east stayres at Wimbeldon," says a writer of that day, "lead from the marble parlor to the great gallery and the dining-room, and are richley adorned with waynscot of oake round the outsides thereof, all well gilt, with fillets and stars of golde. The steps of these stayres are in number thirty-three; and one, six feet six inches long, adorned with five foot-paces, all varnished black and white and chequer-worke, the height of which foot-pace is a very large one, and benched with a waynscot benche all garnished with golde. Under the stayres and eight steps above the said marble parlor is a little compleet roome, called the den of lions, floored with painted deale chequer-worke. This room is decorated round with lions and leopards painted, and is a good ornament to the stayres and marble parlor, severed therefrom with rayled doors."†

A country mansion at the present day should always have two staircases, the front, or principal one, to be situated near the hall, and a back one at the rear of the house; the former for the family, the latter for the servants.‡ The back stairs should be concealed; but it is best to lay open the principal staircase to the view, it being a conspicuous object. The well placing of stairs in a house always regulates, in a great measure, the judicious disposition of all the various rooms. And the first consideration is to place the best stairs where they may be an ornament, and have the most commodious access to the rooms above. The next concern will be to take care that nothing obstructs the staircase, it being a grand and principal object; the rightly placing of the stairs on the plan is therefore a great consideration: and as the principal entrance should be in the centre of the front of a noble house, so the best staircase should present itself immediately beyond the hall.

Staircases must be so placed as to be well lighted, and the entrance to each room be near them, and of easy access, without incommoding any of the rest of the rooms. Their ascent should also be easy and gentle: to attain this the treads are to be broad and the risers low. Back stairs require less tread and may have more rise, being for use only, and not exposed to general view. They should be so placed in the house as not to be seen from the other staircase, and be near the common sleeping-rooms of the servants, to which they lead; and the back stairs, where the room is little, may be composed chiefly of winders. The forms of the principal or best stairs are as various as the rooms to which they lead; but it is necessary to observe, that each flight must not be too long, that is, not to contain too many steps, and if possible to avoid having winders, or, at least, but a few: the first is objectionable as being tiresome, and the latter incommodious and dangerous, if by chance two persons should meet on them, and the descending person should happen to fall.

As all chambers or sleeping-rooms require to be as far from noise and tumult as they conveniently can, and also so near to the staircase that if any accident by fire happens an easy access may be

* To two of the principal chambers at Wressil Castle are to be seen, leading to each, a beautiful small staircase, with an octagon screen, embattled at the top, and covered with very bold sculpture, containing double flights of stairs winding round each other, after the manner of Andrea Palladio's staircases.—(Dr. Percy.)

† Archæologia, vol. xviii. p. 399. At Aldermanston House, the seat of William Congreve, Esq., in Berkshire, the staircase is a perfect model of domestic grandeur, being exceedingly massive, and adorned with large statues from the heathen mythology.—(Moule's Berkshire, vol. ii., p. 15.)

‡ In London, where houses are confined in space, and will not admit of having a back staircase, a sink and cistern are generally fixed on the landing at the head of the attic stairs, where the housemaid's slops are discharged, which from thence descend down a large pipe (concealed in the wall) into the passage in the basement; then passing off under the floor into a drain, finally empties itself into the main sewer in the area.—(R. B.)

had to it; so all back staircases in great houses should be carried from the ground-floor to the attic, constructed of stone, and the wells of them stuccoed, that no danger of fire might prevent the safety of getting down them, or passing over the roofs (if in a town) to escape the fury of the flames. There are three usual places in a house in which the principal staircase may be placed, and which is left to the choice of the architect. First, in the front, just within the entrance-hall; secondly, in the middle of the house, beyond the hall; and, thirdly, at the back or rear of the house. When the staircase is placed in the front hall, the family are too much exposed in passing up and down them. In the centre of the house, the staircase becomes a grand object with its handsome lantern-light over; but here it cuts up too much of the interior.* At the back the staircase is best for the general arrangement of the rooms; and where the returning parts of the stairs fall back into a semicircular or segmental bow, they become handsome. The principal staircase in all good or first-rate houses should be formed of Portland stone, and the steps long enough for not less than two people to walk up them side by side.†

It was at one time held as a rule, that nothing should obstruct the sight of the staircase on entering a house; though this opinion afterwards changed, and the architect placed the staircase in the centre, and, lastly, in the back of the house, but in a direct line with the entrance-door, an appropriate place, where a lobby intervenes. The staircase should, however, present itself boldly and freely to the sight. As to the situation of the staircase varying with respect to the principal door, it is a point much disputed; there is, however, in some edifices, no disadvantage in making it face the entrance door, and bringing it very forward; in others, as we have shown, there is a greater convenience and beauty given to the object by placing it back, but in the direction straight before the door. Some prefer placing the staircase on one side of the entrance: this, I think, is not so eligible, particularly in public buildings, though there are some good examples where they appear very noble when enclosed by a screen of columns. The staircase of Drury-lane Theatre, in London, is so situated—an exceedingly grand design.‡

In Italy there are many grand staircases, both in the public and private buildings. The Scala Regia, in the Vatican at Rome, is the most superb perhaps in the world, consisting of four flights of marble steps, adorned with a double row of marble Ionic pillars, each in one piece and of beautiful colours. This staircase forms a perspective of singular beauty and grandeur.§ The staircase in the Louvre at Paris has a most magnificent effect when approached, and strikes the beholder with astonishment. This staircase consists of one immense flight of marble steps, but having several quarter spaces, on either side of which are two magnificent marble columns with their entablature, supporting a vaulted lacunary ceiling. The staircase in the palace of Versailles is, however, the grandest and most splendid perhaps in France, designed by Mansard, which, like the

* The lantern-light is better than the skylight, the latter being liable to let in water, get loaded with snow in the winter season, frequently broken, and in the end, the glass becomes stained, and the laps choked up with dirt.—(B.)

† A good architect (says Sir Balthazar Gerbier) contrives free access to rooms, whereunto the well-placing of the stairs contributes: the composing a fit and easy stairs being a master-piece fit in respect of the place, convenient if the steps be deep, (broad,) and low rise, for a straight ascending or descending (without bending the sinews) gives most ease to the body, which doth rest better on his bones than on sinews.—(Counsel to all Builders.)

‡ This staircase consists of a triple flight, having two below, one on the right hand, the other on the left, which joins a third at a half-space, and lands on the saloon floor at the back of the boxes. (A.) It was observed by the late Mr. Greenwood, a scene-painter, that the staircase and saloon of this theatre were too grand for the proscenium, as no scene-painting of any play could surpass it, and therefore affected or detracted from the scenic representations, and disappointed the audience, who naturally expect to be still further surprised when they arrive in the centre of the house.—(A.)

§ The Palazzo Ruspoli is remarkable for its staircase. It consists of four flights of thirty steps, each step consisting of a single piece of marble near ten feet long and more than two feet broad; it is adorned with antique statues.—(F.)

rest of this palatial edifice, is superlatively grand, splendidly enriched with noble pillars, between which are busts, and above a ceiling adorned with historical paintings, and ornaments emblazoned with burnished gold.

Staircases, when designed with judgment and taste, are the most noble and beautiful parts of the interior of the house, and the first object of consequence that arrests the attention; therefore too much care and ingenuity cannot be bestowed upon them. The object the architect should here have in view, is that of giving to the separate flights a graceful turn; to have plenty of light, and spacious landing-places. If the staircase is placed in the middle of the house and lighted by a lantern high above, the lantern will admit of being made very handsome, with a pendentive ceiling, and the flower in the centre of the ceiling will add to the beauty, arising from the light and shade among the leafage. If the lantern be glazed with coloured glass, it will be further enhanced by a diffusion of golden rays pouring down the staircase, producing a sort of enchanting effect.*

DISSERTATION XVI.

ON THE CONSTRUCTION OF FLOORS.

"That many bodies laid horizontal will support weight by the cohesion of their parts, every one has found who has seen dishes on a shelf or a bricklayer upon a scaffold."—Dr. Johnson's *Letters*.

Floors at all times require the greatest consideration in their construction, being liable to sink in the middle by their own gravity, or to spring when persons are walking on them,† and if not sufficiently firm, the plastering of the ceiling underneath will assuredly crack, and the walls be thrust out and fractured. Skeleton floors consist of three different kinds, the common, strutted, and bridged. The common floor consists of a series of joists laid horizontal and parallel to each other throughout the rooms, and placed from one foot to sixteen and eighteen inches apart, resting in the walls at the ends on wall-plates, and on the partitions in the middle.‡ Single floors are now in most cases cross-strutted, with quartering of a slight scantling. The caution necessary for strength in common floors depends more on the depth of the joists than in their thickness, as their gravitation always presses downwards. In the next place, avoid having the brick-work above to rest on the ends of the joists; keep them clear, and allow good and sufficient room over for wedging them up

* If the architect should find room sufficient, (and a little additional expense in a good house is not of consequence where the staircase will be an object of elegance,) I should advise him to divide the grand staircase on the ground-floor into three flights, so passing up the middle flight, and branching off either at the right hand or left to the landing-place above. In this case the two bottom steps should have French ends, that is semicircular ones. The staircase in the British Museum is so formed, being a building in the French style; it was the first staircase of the kind erected in this country, and has since been much copied. If the staircase is to be placed at the rear of the house, then a grand, large, Venetian circular-headed window should be placed in the outer wall, to light it, which may have a mosaic border of ground or coloured glass, which will produce a beautiful effect. The grand staircase at Buckingham Palace is a most superb object with ormolu balusters well worthy of being seen.—(B.)

† To ascertain whether a house is well and substantially timbered, I would advise the surveyor to place himself in the middle of each floor and there make a spring; if the house is slightly constructed in material, a tremulous motion will be instantly produced, and even the very sashes will vibrate in their frames; cracks may also be discovered in the plastered ceilings and in the angles of the rooms.—(B.)

‡ In London the building act forbids joists to be carried into party-walls; they are therefore generally carried from back to front through the house; at midway they should be borne on unyielding supports, the central cross divisions of the house below being of substantial brick-work; but instead of this, in at least nine-tenths of all the London-built houses, there is merely a slight partition of timber, which containing in its formation every structural fault, yields beneath the burthen, and the whole system of floors and roofing puckers in like a falling sheet.—(A. B.)

to a level after the walls are carried up and settled, before the floors are laid. Underneath the floor, where it is to be lathed and plastered for the ceiling, if for a common third-rate house the laths are nailed to the joist. If the ceiling is required to be somewhat stronger than usual, which is the case in good second-rate houses, quartering or ceiling-joists should be spiked below to the flooring-joists, about fifteen inches apart, which greatly strengthens the floor.*

Bridge-floors are formed by truss-girders laid across the building from one wall to the other opposite, and placed about nine feet apart; care always being taken that the bearings at each end are on the piers and not over the windows, also avoiding the flues and fireplaces.† This being done, binding-joists are then framed into the girders, their top edge being kept about five inches below that of the top of the girders, and six feet apart, with side-bolts at the ends, going through the girders, with nuts and screws, for the purpose of keeping the whole together. After this the bridging-joists, which are generally square, are laid down across the top of the binding-joists, and spiked to the same to receive the flooring-boards. Then the ceiling-joists underneath are framed in between the binding-joists by means of chase mortices, which joists are to receive the laths. In good first-rate houses, short pieces of board are always laid in on slips above the ceiling-joists, and on them a pugging made of chopped hay, mixed up with common earthy clay and a sprinkling of lime, to prevent or deaden the sound. In the ground-stories of houses of the first magnitude, where the servants' offices are in the basement below, as in London, arches are sometimes turned in between the joists, with tiles made for the purpose, but in this instance the joists are usually of iron, and placed from five to six feet apart. In laying down flooring-boards, it is best at all times to have the joists so as to place the boards parallel if possible to the fireplaces, for the purpose of avoiding walking across them. Nothing of this kind is more objectionable than in passages. But in ground-floors the joists are generally laid the reverse way of the floors above, as a cross-tie to the walls of the building.‡

The last and the finish of a floor after the skeleton frame-work, is that of the planed boarding over; but previous to performing this, the joists must be wedged up perfectly level, and a lath nailed on the joist along the doorways before the floor is laid, otherwise the doors will be liable not to clear the floor. There are three general kinds of boarded floors distinguishable from each other; namely, folding, straight-joint, and dowel. The folding is performed by a board being first nailed down a little less than three or five boards off from the first nailed board, the two inner ones are then raised in a ridge in the middle, a short board laid across and jumped on, which then brings them down on the joist, after which each board is nailed to the joist. In the second kind, the boards are laid down separately and drawn close by a lever, and then nailed on one side and one edge. The third kind of flooring is held together by dowels, and each board nailed on the edge to the joist. These floors are generally formed with narrow boards of wainscot, chestnut, or clean deal battens.§

* Where a floor in a public building is required to bear a certain weight occasionally, such as an assembly of people or guests at a public dinner, the calculation must be made on each joist, supposing the weight to be equally distributed along it from one end to the other, and not taken in the middle, which would lead to a false conclusion.—(See Tredgold on the Strength of Timber.)

† To avoid this, the girders are sometimes obliged to be put crossways in the building; here the ends of those important timbers should always be tarred over, to protect them from decay arising from the damp of the wall.—(B.)

‡ If either of the outer walls on which the joists happen not to rest should be considered weak, it is best to tie them by short trimming-joists from the common joists to the walls.—(B.)

§ At the end of the sixteenth century wainscot floors were much in use, and in some manor-houses chestnut. At Cotele, in Cornwall, an ancient house, and also at Mount Edgecomb, in Devonshire, the floors are of chestnut, but now such floors are seldom to be met with.—(B.)

Since the use of carpets came into fashion in England, the boards of floors have not been so much regarded.* In the early period of our history the flooring-boards were generally coarse; and the floors were covered with rushes even at the close of Elizabeth's reign, although instances of tapestry cloths for the feet to rest upon occur as early as Edward I. It does not appear to have been the custom at any time to leave floors bare.† Dr. Bulleyne, in his Bulward of Defence, printed in 1562, observes, "that rushes which grow upon dry ground be good to strewe in halles, chambers, and galleries to walk upon, defending aparel, as traynes of gownes and kertles from the dust;" and Decker speaks of bulrushes being applied to the same use.‡

The boarded floors at this period were rough, but of substantial workmanship, and the joiners' work rude. At Godman-hall, Cumberland, built in the thirteenth century, the boards or planks of the floor above the principal story were grooved into each other, to prevent assaults above from the borderers. The upper floors of Salmesbury-hall, built in 1532, were of massy oak. Many of the floors of the early houses in England, built by the Romans, were of paved glazed mosaic earthenware tiles;§ but these tiles were of various colours, and seem to have been laid with great attention, many of which have been found on digging up old foundations in different parts of the kingdom; several have lately been met with of this description at Exeter, some of which are in the author's possession.‖ The common floors were laid with tesselated pavement, which have also been met with; these floors are formed with small pieces of a hard white stone, each piece about one inch, and the whole laid close to each other in compact cement. The mosaic tiles are generally about six inches square.

The refectory or dining-hall at Christchurch, Oxford, built in the reign of Henry VIII., was paved with green and yellow tiles: the whole number, we are told, was two thousand six hundred,

* The French are not partial to carpets, therefore their best floors are very handsome—an instance of which may be seen at the British Museum. The floor of the Picture Gallery at Buckingham Palace is also laid in the French manner, and consists in being framed in small diagonal squares; but here they are formed with different English woods, which has a rich and varied effect.—(B.)

† Our poets, particularly Chaucer, Ben Jonson and Shakspeare, all speak of reeds and rushes being laid in principal apartments, and sometimes being strewed with herbs and aromatic flowers.

"All herbes and flowres, fragurant, farre, and swete,
Were strawed in halles, and layd under theyr fete."
(Life of Saynt Wyburge.)

"Of olive and rug[1] floures
Weren ystrewed halle and toures."
(Marriage of Cleopatra.)

Glendower. "She bids you
Upon the wanton rushes lay you down,
And rest her gentle head upon her lap."
(Henry IV., Archdeacon of Bayis-house.)

"Their honours are upon coming, and the room not ready:
Rushes and seats instantly."
(The Widow's Tears, Old Play.)

"Sweet lady, I do honour the meanest rush in this chamber for your love."
(Every Man in his Humour.)

‡ Lævinius Lemnius, a physician and divine of Zealand, visited London in the sixteenth century, and wrote an account in Latin of his travels, which was translated by Thomas Newton in 1576. He speaks with great admiration on the cleanliness of the English, and adds, "their chambers and parlours strewed over with sweet herbs refreshed me; their nosegays, kindly intermixed with sundry sorts of fragrante floures in their bed-chambers and private rooms, with comfortable smell, cheered me up, and entirely delighted all my senses."—(T. N.)

§ This is the fashion at the present day even in the bed-rooms of the inns in France, which the traveller has good reason to remember, being rendered slippery from their high polish.—(A.)

‖ Tiles in squares or dies in checker-work, one square after another; those tiles were of various figures, formed by indents or sunk work from the mould, (like the Egyptian bricks,) which were afterwards filled up with various colours and painted, and then varnished and baked: red and green appear to have been the prevailing colours.— (B.)

[1] Red.

and each hundred cost three shillings and sixpence. The hall at Hampton Court, and a room at Wimbledon in Surrey, called the lower Spanish room, were "floored with paynted tyle."

DISSERTATION XVII.

ON THE FORMATION OF PARTITIONS.

"The strength of a partition depends more on the just position of the braces, than on the substances of the timbers."
TREDGOLD'S *Carpentry*.

There is more to be considered in framing partitions which divide the internal part of a house into rooms, than is generally supposed or attended to. These rough frames require to be constructed upon scientific principles, as they frequently have to bear not only a great part of the weight of the floor above them, but in many instances much of the weight of the roof. It is for want of an early attention to these parts of the carcase of the house that we frequently see cracks in the plastering at the angles of the rooms and along the ceilings, and such general settlements taking place as often to occasion the doors to drag on the floor; an evil which can never after be remedied without lifting floor after floor by a screw-jack, and to do this much of the work must be taken to pieces and constructed anew.* The proper purpose of timber partitions is for separating the stories of buildings into various divisions, and generally the upper into more than that of the lower part of the house, by which the perpendicular rests are departed from; yet, if formed on true principles, they will subsist without casting any weight on the floor, and even the ceilings may thereby be more firmly upheld; for a quarter-partition properly formed, contains truss-work as capable of upholding a floor, as the truss of a scientific roof is of upholding a ceiling of prodigious weight and span.

Partitions should always be well braced, and these braces so disposed as to throw the superincumbent weight laterally towards the side-walls; but braces are too often considered by many of the present builders more in the light of economy in saving materials, by the means they afford them of using in short pieces, than adopted as a great principle of discharging the preponderating weight above from that of the floor on which the partition rests.†

Slight cracks in a house sometimes occur near the ceiling, where even the partition has been well braced, occasioned by the shrinking of the joist on which the partition is seated; for this reason, a house is much better to stand some time in carcase before the joiner's work is done, for the wind during that time passing through the building will season the timbers. The shrinking of the joists on each floor, though but one-eighth of an inch, is considerably increased in the partition up through the house, where the joists lay on the partition heads; for one-eighth of an inch on the ground-floor makes a quarter of an inch on the next floor, and so on in the same multiplying ratio; for this

* In the construction of quartered-partitions which have much burthen to bear, it is best to have a tie-plate over each doorway, and to form a strong truss in the roof, immediately over each quartered partition; thus all dangerous settlements in the partitions may be prevented: any one of these trusses, if constructed strongly enough, may be made to carry all the burthen of the floors of a house, either by bearing the weight on its back or by suspension to it. If an old house has sunk in its centre from the weight of the floors upon an ill-constructed stack of partitions, it will in general be best to insert a strong truss above the heads of the doors in the two-pair story. Wrought-iron bars may be fastened to the roof on each side the king-post, carried down to each partition, and fastened by nuts and screws, thereby suspending the partition to the roof, which is a most excellent method.—(B.)

† It is not my purpose here to give detailed carpentry for the operative mechanic, but only those general principles which are sufficient to guide the builder in the construction of those parts of his building.—(Author.)

reason some builders have considered it more advisable that partitions should have no sills, but the studs be carried down between the joists, and framed into the head of the partition immediately below. Though this is correct in idea, nevertheless I prefer having the sill, the partition being much stronger, but at the same time placing blocks of wood on their ends between the partition-head below and the sill above, which prevents both shrinking and sinking. Where a partition is to be framed so as to have a door leading from the stairs into the drawing-room, and also with folding-doors between the front and back drawing-rooms, the head of the partition in this case should be well trussed with oak, having a straining-beam in the middle, two queen-posts, and two braces, with lead at the abutment-joints; these pieces are then to be forced together with bench-screws, and kept in their places by wedges passing through the auxiliary head.*

DISSERTATION XVIII.

ON THE PRINCIPLES AND GEOMETRICAL FORMS OF ROOFS.

"A little stronger than strong enough."—OLD BUILDER.

There is no part in the whole scope of the architect's profession that is more important, or more requiring a deep consideration, than the roof; and there is this satisfaction for the man of mechanical genius, that there is none in which there is greater room for improvement. It is necessary first to comprehend perfectly the purpose of this part of a building, and then what is generally known concerning its structure. Its purpose is to cover the house above, and to carry off the rain, sleet, hail, or snow that falls, and is generally more considered by the builder as an object of utility to be attended to, than as one of beauty, although differently treated by the tasteful architect. Its general form is that of one great triangle resting on the side-walls, and whose principal rafters convey to the reader's mind that passage in the Iliad, where Ulysses and Ajax are described as wrestling, and is thus translated by Pope:—

* All the plates and cross-ties of such partitions should be made to camber very considerably, the curve gradually increasing as the stories ascend; and all the floors, ceilings, and door-heads should conform to this camber, which should not be less than half an inch on the one-pair floor, an inch on the two-pair floor, and an inch and a half on the three-pair floor, and so on in proportion. If this precaution be not taken, you may be sure in less than two years to find the floors and ceilings fall out of level in their centres, as much both from the shrinkage of the timber, and from the strain upon it from burthen. The door-jambs fixed in such partitions invariably strain out of square at their angles more or less, in proportion to the dryness of the timber, the skill exercised in trussing the work, and the degree of burthen cast on the partitions; therefore all such jambs should have their heads fixed somewhat out of level, so as to settle permanently to a correct square form, instead of being fixed level, so as to settle permanently out of square. In general, plates immediately above the floors should be omitted, as the more horizontal timber there is, the more shrinkage there will be, and consequently the more settlement; and such plates mostly require to be cut through for doorways; they are rarely of use as ties to the work. Under each end of each truss a templet of granite street-curb, three or four feet long, or some other durable and incombustible fulcrum, should be set: these should be strongest and longest where the trusses act with most energy.—(A. Bartholemew.)

Wainscot partitions are such as are framed in panel-work.[1] These partitions did not come into general use till Elizabeth's reign, though panelled framework to walls was known before, as we have it on record. (MS. Cotton. Vitellius.) "That the house of Richard Fermor, of Eustove, gent., (temp. Henry VIII.) they sydes of the perlor were celyd (panelled) with wenskot." And at Wressil Castle, the sides of the rooms were ornamented with wainscot, containing a great profusion of ancient carving, finely executed in wood, exhibiting the ancient bearings, crests, badges, and devices of the Percy family (so renowned in Chevy Chace,) in a great variety of forms, set off with all the advantages of painting, gilding, and imagery. —(Dr. Percy.)

[1] It is a misnomer to call deal-framed panel partitions wainscoting, it being evidently a contradiction in erms, but such is the general practice among builders.—(B.)

" Amid the ring each nervous rival stands,
Embracing rigid, with implicit hands:
Close lock'd above, their heads and arms are mixt;
Below, their planted feet at distance fixt,
Like two strong rafters, which the builder forms,
Proof to the wintry wind and howling storms,
Their tops connected, but of wider space
Fixt on their centre stands their solid base." (Book 23.)

Within this great triangle others are formed, each tending to resist the pressure of the inclined principal rafters, and to uphold the tie-beam, which keeps the roof from spreading, and so constructed as to throw the weight right and left on the side-walls. One great caution is required, that the roof be neither too heavy nor too light, although the old adage says " a little stronger than strong enough;" if it is strong enough, surely that is all that can be required; beyond that a roof is a load on the walls, and a useless expense laid on the proprietor.*

When a roof is heavy by its unnecessary quantity of timbers it has a tendency to crush the side-walls: all superfluous and unnecessary thickness in the timbers becomes likewise part of the load. When the roof is slight, the timbers on the contrary are liable to swag in different parts, and become incapable of keeping the walls together, if not at the same time to thrust them out of their perpendicular; every extremity is therefore to be avoided. Thus he who knows well the strength of timber, and how to proportion each piece according to what it has to bear, with the nature of the thrust and the resistance, how to be applied in the distribution of his braces and struts, is best able to construct a roof. This great component part of a building requires something more to be thought on than merely to cover and carry off the rain which falls on the house; it must be considered likewise as a support for the walls by holding them together. This, on the other hand, it will not do if improperly braced, or too slight in the timbers employed. In practice the great and common evil is, that generally the timbers are too large and too heavy; that architect will therefore render the most acceptable service to his employer who shall show how to retrench and execute his roof with a small quantity of timber, as he will by this take off an unnecessary load from the walls, and a large and useless expense to the owner.†

The forms of roofs are various, but the four following are the most general. First, the common span-roof, which is like the Roman letter A: the second, that of the letter M, but more properly like the M inverted; this roof has a gutter in the middle. Thirdly, the kerb or French roof, as thus ⏢‡, which rises with little inclination from the gutter of the parapet till it reaches the kerb head of the garret windows, which there forms an eave, and then slopes inwards, till at last it forms a common ridge in the middle in the usual way. The fourth is a truncated roof of this figure ⏥, which instead of rising to a

* By this we do not mean that the roof is to be calculated merely as to its own weight, for it will occasionally have to carry a body of snow.—(B.)

† Nothing shows the skill of a carpenter more than the distinctness with which he can foresee the changes of shape which must take place in a short time in every roof. A knowledge of this will often correct a construction which the mere mathematician thinks unexceptionable, because he does not reckon on the actual compression which must obtain, and imagines that his triangles, which sustain no cross-strain, invariably retain their shape till the pieces break. The sagacity of the experienced carpenter is not however enough without science for perfecting the art. But when he knows how much a particular piece will yield to compression in one case, science will tell him, and nothing but science can do it, what will be the compression of the same piece in another very different case. Thus he learns how far it will now yield, and then he proportions the parts so to each other, that when all have yielded according to their strains, the whole is of the shape he wished to produce, and every point is in a state of firmness. It is here that we observe the great number of improprieties. The iron straps are frequently in positions not suited to the actual strain on them, and they are in a state of violent twist, which both tends strongly to break the strap and to cripple the pieces which they surround.—(Dr. Robinson's System of Mechanical Philosophy, vol. i. p. 60.)

‡ See the roof on the British Museum, which is a French building.

ridge, has part of the top cut off, and there forms a leaden roof, a little raised to a ridge in the middle, but scarcely differing from a flat. This roof is affixed to large spans; it is compact, and shows less elevation than the common roof.*

Whatever be the form of the roof, the architect should always take care in the construction to preserve its weight equally on the separate parts, that it may not bear more upon one side of the building than another; and in the construction of the whole edifice he will do well to contrive that the inner division walls, where there are any,† bear their share of the load, and that not more than is needful be laid upon the outer ones. The roof embracing every part of the building, and pressing equally everywhere, becomes what it was intended, a bond of union and firmness, as well as a covering to the whole house: and making the middle or inside walls assist in supporting the roof is very desirable for another reason; that is, not being in danger of falling in course of time, occasioned by the rotting of the end of the tie-beams; although leading their ends to keep off moisture will prevent the catastrophe, or an auxiliary foot-piece may be added to the beams, which is now very commonly done. This assumes the form of a corbel, on which the tie-beam rests, giving great additional strength to the very part which is the soonest to decay.

All roofs should be kept low, with the exception of those on Tudor buildings, whose character is high-pitched and ornamental, having scalloped barge-boards and pinnacles on their gables, with cranelated parapet walls. But the various heights of roofs depend in some measure on the nature and quality of the covering to be placed on them, as well as on the situation, whether they are sheltered, or stand exposed to the boisterous elements. In Eastern countries, where it rains but seldom, the houses are covered with flat roofs, and surrounded with a plain parapet wall, where the family frequently take an airing in the evenings, and in the summer months sleep at night.‡

The Egyptians had the roofs of their houses also flat.§ The Greeks constructed their public buildings with a common span-roof, of two inclined sides,‖ the height of which was from one-sixth to one-eighth of the span, and laid them over with slabs of marble. The Romans followed the Greeks in the same form of roof, but made them rise from the base of the triangle from one-fifth to two-ninths of the span, and finished their parapets with balustrades. In England our roofs rise from one-fourth to the third of the span; but this determined rise must depend on the width of the building, the materials, and kind of covering to be used, and the screened or exposed situation of the edifice. A wide building requires a higher roof than a narrow one, and smaller slates, such as the ladies; the duchess slate are most proper for a lower pitch. Plain tiles require a higher rise of roof than pantiles; and slates again admit of a still lower pitch than tiles: on an exposed situation in the country they require a higher pitch of roof than to a house in a town. The lower

* The projecting roofs in the Tuscan manner or Italian style, where they are great, and ornamented with cantilivers, give a boldness of effect by their depth of shadow, as well as being a great preservation to the walls of a country villa; but then it is to be observed, that those roofs should have sunk or concealed gutters at the eaves. And it is also essential to observe a due medium in the projection of the eave, so that where the top of the windows comes near the roof they may not be too much darkened, and the bed-rooms rendered gloomy; nor on the other hand have too little projection, so as to give the eaves a meagre appearance.—(B.)

† If there are partitions and not internal walls, the roof must be so constructed as not to depend on them for support, but on its own principles.—(B.)

‡ Mr. Buckingham informs us, that when he was at Bagdad he slept on the top of the house, which was divided into small rooms without any ceiling, and open to the sky; that the breast-wall was somewhat above his head, and the house being higher than those around him, awaking early in the morning, his curiosity tempted him to climb up and look into the adjoining dormitories of the other houses. In which act, he says, had he been discovered, he might have paid dearly for his curiosity, in prying, by having a ball sent through his head; an act at this place justifiable.—(Buckingham's Travels in Mesopotamia.)

§ There is a small model of an Egyptian dwelling-house to be seen in the British Museum, lately brought from Egypt, from which the author of this work has taken a drawing.—(A.)

‖ Some had no roofs, particularly their temples, but were left open to the sky. (See Pausanias.)

a roof is kept down, the more the strain as well as weight presses on the abutments of the timbers. The higher it is framed, the more the weight is thrown on the walls, and the better the walls will be held together.

Roofs which have a gutter in the middle, like the Roman letter M, are likely to hold and retain the snow, and become a serious load.* Roofs which are high-pitched or more elevated, discharge the rain and snow from them more quickly than those which are low, and are less liable to be stripped of their covering by the wind, and the rain is not so easily blown between the slates; but they are unsightly, and more expensive than low roofs, for they require longer and larger timbers, and a greater quantity of covering. The low roof possesses the advantage in point of economy; but then it requires larger and longer slates, and greater care in the construction.

The early English roofs were very remarkable from their being constructed of oak and chestnut, and without iron ties: they were lofty, and generally contained inferior lodging-rooms. Shakspeare, who sometimes adopted the custom of his own country in his foreign plays, alludes to these garret bed-rooms in his "Two Gentlemen of Verona:"

> "Her chamber is aloft, far from the ground,
> And built so shelving that one cannot climb it
> Without apparent hazard of his life."—*Act* III. *Scene* I.†

A DESCRIPTION OF THE FIR-TIMBER USED IN CARPENTRY.

The following is the name of each kind, beginning with the best in quality and descending in order. First, Memel, brought from Prussia, in the Baltic; second, Riga, from Russia; third, Dantzic, from Western Prussia; fourth, red stone-pine, from Miramichi in North America; and lastly, yellow pine, from Quebec, the capital of Canada.

CRITICAL REMARKS.

Added to the defects of modern English building, particularly that in the metropolis and its immediate neighbourhood, is the improper state in which timber is used. The major part of our best timber is imported from the north of Europe, and is immersed in docks, and lies there floating till it is sold for immediate use. The consequence of this is, that the timber (which some suppose is by the water freed of its sap) becomes swelled to much beyond its former bulk; it is then hastily framed together while the very water is running from it, and very soon after being so converted, it shrinks to such a degree that every tenon becomes loose, every joint strains falsely from the shrinkage, and every ceiling and quartered-partition crack by the opening, diminishing, and distortion of the wood. (R. B.)

* Of all the ill-constructed roofs, that of the V form, frequently adopted in the third and fourth-rate houses in London, is most to be avoided: here the roof lies on the top of the building like an open book, with each cover leaning against the two adjoining houses, the middle pressing with all its weight on the gutter-plate, which runs from front to back, and rests with all this superincumbent weight on the partitions which divide the front and back rooms, whereby the floors are thrust down in their centre, and the doors brought out of square.—(B.)

† The carved roofs in the great halls in the time of the Tudors were extremely picturesque and grotesque, many of which still remain: of the one at Haddon, we have the following account. The roof, the timbers of which were formed with pendents richly carved, and emblazoned with heraldic insignia, formed the most striking picture of the building. (Pennant.) Of a much earlier period, that of Westminster Hall is deservedly admired. The original hall was built by William Rufus, the present one was built by Richard II., in 1398. This magnificent roof is made of chestnut, and the principals are in the form of a trefoil leaf, with winged figures at the sections of the curves; these hold shields to their breasts, and their legs are enveloped in carved clouds. The series of little Gothic arches which ornament the principals, and the beautiful lantern-light on the roof outside, produce in each a picturesque effect. This roof is covered with slate, but the original was of lead. The interior is ninety feet high from the stone floor, and seventy feet in length by seventy in breadth, and is not exceeded in its dimensions by any other in the world.—(Maitland's History of London.)

DISSERTATION XIX.

ON THE DIFFERENT COVERINGS OF ROOFS.

"No part of a building is so uninteresting as the monotonous slanting roof."—PAYNE KNIGHT'S *Analytical Enquiry into the Principles of Taste.*

Roofs, in the present style of English suburban architecture, are less susceptible of decoration than any other parts of the building, as they admit neither of the highly wrought covering of ancient Greece, nor of the fluted tiles of the Romans. It is only by varying the continuity of the outline that an ornamental appearance can be produced: decoration is therefore difficult; and though the sloping roof is slightly diversified in its slated surface, when compared with that of the wrought stone in front of the walls, yet it has no effect of light and shadow, and it has also a more plain and unfinished look than any other part of the edifice, which is heightened by the greatness of its surface and inharmonious opposition of colour, contrasted with the other parts of the building, a very material fault in whatever is to be combined with the most highly finished forms and ornaments of architecture. It is to be considered, therefore, by what means these defects may, by reference to ancient modes, be obviated.*

The roofs of ancient buildings still remaining, however, show us that a peculiar attention was paid both to beauty, regularity of design, and effect by light and shadow. The Tower of the Winds, at Athens, an octagonal building, whose roof terminates against a pedestal, on which is a Triton holding a wand, pointing to the wind that blows, is covered with slabs of marble, in each of which the horizontal edge presents so much as to give a strong shade, while the vertical joists are so elevated as to form high ribs, which break the uniform surface in a very beautiful manner. The Lantern of Demosthenes, a circular building, whose roof terminates against a scroll-pedestal, on which is placed a tripod, is roofed in the form of laurel-leaves, which in a different way have the same effect. The ancient mode of covering by semicircular tiles laid within each other, gave a sort of fluted look to the roof, and the old flat tiles of the Lower Empire, which were joined with a high rib, something in the way of the Tower of the Winds at Athens, had the same effect of light and shadow.†

* From the accounts of historians and travellers, we have shown that the roofs among the first and present inhabitants of the East were made flat for walking upon, and sleeping there during the hot months; but to prevent the settlement of rain and lodgment of snow in other countries where it was frequent, Alberti says, that the roofs *sub dio* were not continued or adapted for ambulation, like those *non sub dio*, the covering materials here consisting of thatch, wooden planks or shingles, and slabs of stone, though sometimes metal or lead.—(Alberti.)

† Buzzes, of Naxos, who lived five hundred and eighty years before our era, is said to have been the inventor of those marble slabs, worked into the shape of tiles for the roof. As the wet would be admitted through the joints of these tiles, another set, called harmi, or joining-tiles were used. At Rhamnus these last tiles were semi-hexagonal prisms, hollowed underneath. The upright pieces of the eaves of the roof, rounded at the top, terminate the alternate row of harmi or joint-tiles. The ornaments upon them were painted. The joint-tiles of the eaves terminated on upright pieces, first rounded at the top, and afterwards indented or scalloped. The lower course of the tiles was formed in blocks thrice the length of the other ties. In the Doric public edifices the joints take place over the centre of every triglyph. The tiles of the eaves, to which the joint-tiles were attached by plugs, were the raking bed of the cornice.—(Inedited Antiq. of Attica, pt. xxxiv. pp. 12, 13.)

In the roofing of the Propylæa at Eleusis, and in the Doric buildings generally, the roof terminates in a stillicidium, (dropping eave,) but in the temple of Diana Propylaia, at the same place, the upper moulding (nina) of the pediment-cornice was a terracotta, and a channel was hollowed in it for the purpose of receiving the rain which fell upon the roof. In this member of the building lions'-heads are sculptured in bold relief, through the perforations of which the water effected its escape. The tiles of the roof were made of baked clay. The alternate joint-tiles terminated at the ridge and eaves with a flowing ornament (called an anthemion), composed of the honeysuckle flower, and two scrolls belted together, and supported by three acanthus-leaves. The top bed of the cornice, in blocks thrice the length of the tiles, was saddled at the joints, and constituted the lower course. In the centre of the upper surface of this a check or stop was formed, to which the joint-tiles, ending with a flowered ornament, were cramped. Every block had two perforations, through which the water falling upon the roof passed off.—(Ionian Antiquities.)

Even the ridge and hip-rolls of our roofs diminish in some degree the nakedness of their appearance. The richness occasioned by variation from dull uniformity of surface, is also very striking in some of the old leaden roofs of our cathedrals; where the sheets are narrow and the rolls large, and where the ends are seen in divisions along the eaves, they have a very picturesque effect. The roofs of the monastic buildings before the Reformation appear, from a writer of those days, not only to have been covered with lead, but to have had curious grotesque spout-heads, which details, unimportant as they may appear, have been thought worthy of poetical commemoration. Lydgate says,

> "Every house ycovered was with lead,
> And many a gorgoyle, and many a hideous head,
> With spouts thorough."

The architects of the middle ages seem to have had it in view to give both lightness and richness to their roofs, by a sort of fleur-de-lis lacing on the ridges, as well as to decorate the gables with quatre-foil, open-work, carved vine-branches, and clustered grapes in a serpentine form. This kind of ornament yet remains with peculiar elegance in many of the old manor and city houses in some of our ancient towns in England. Ornamental crest-tiles, too, of every grotesque form and character, may still be met with, which has a truly pleasing and picturesque effect.*

Of slate, Dr. Whitaker says, "there is a kind of covering which is now universal in Manchester,† and was first introduced there at an early period." This is that light-coloured species of flaky stone of which we have numerous quarries in England, and which we still designate by its British appellation of sylatta, or slate. Pliny mentions it as a white stone that was divided by the Celtæ more easily than wood, and sawed by them into thin plates for tiles. It was primarily divided into plates, and first applied as tiles within the northern region of Gaul; was so used very commonly in the first century, and still retains among the French its Celtic denomination of esclate, or slate. And at this era, if it was introduced into Britain from Gaul (France,) so is it found among us during the period of the Romans' stay in this island. Some Roman buildings in Britain appear, from remains that have been discovered, to have been actually covered with slates, and they were fastened to the roofs with nails of iron, hooked, long and large.‡

The best covering, without doubt, for houses is lead or copper, but on account of its great expense it is now but seldom used for that purpose. Thus having taken a brief view of the history of slated houses in other countries, we shall return to our own, where this material is now the standard and most general article for covering all good houses. The best slates which can be

* The covering used for houses at an early period in the North of Europe, was that of bulrushes, but the Romans seem to have introduced the use of reeds for this purpose, and the buildings of colleges and town-houses in other countries were then generally covered with it: even in our own country, at Oxford and Cambridge; and such was the roofing in London within these three last centuries: but afterwards some of the more respectable structures would probably be roofed with scindulæ (shingles), or boards; such are the common covering in all our American colonies; and this was equally used among ourselves in former ages, and continued even in Edinburgh beyond the beginning, and in most parts of Cheshire before the middle, of the last century. And they were generally used even in Rome for the long period of nearly five ages. But either their houses afterwards, or others at the same time, were probably covered with tegulæ, the Saxon tægles, and the Armorican teolen, or tiles, which were first invented at Cyprus, were, after the shingles, the general roofing in Rome, and appear sufficient from the name to have been brought into Britain by the Romans.

In Virgil's first Eclogue, written about 41 B.C., we are informed that his cottage in the neighbourhood of Mantua, his native place, was covered with turf. The passage is here translated:

> "And shall I after many a year of woe,
> E'er my loved country tread, e'er hail again
> My turf-roof'd cot, the palace of my reign?"

† Whitaker's History of Manchester.

‡ Hearne's Strusfield Pennant. Leland, vol. viii. p. 30.

procured are those brought from North Wales, and which are of a blue colour.* The Westmoreland slates are by many persons strongly recommended: the colour of these slates is considered very beautiful, being of a light green, which certainly harmonizes well with a building surrounded by trees. The slates in Devonshire and Cornwall are not so excellent in comparison with those just mentioned, because they decay quicker; but their colour is generally of a good tone, being in some parts that of a purple-grey. The Dennybole quarry in Cornwall produces the largest, finest, and most durable.†

Slates are much dearer in London than tiles, but the former are nevertheless getting greatly into use, slate being found preferable in every respect. It is a lighter covering, lies much closer, and more beautiful and agreeable to the eye; and there are instances of a greater duration, sometimes continuing good and sound for centuries.‡ Some slates will certainly last much longer than others, and in this respect they vary according to situation. There is a drab-stone used for covering houses in Dorsetshire, and another kind of this colour in Kent, called Kentish ragstone; these are much coarser in their particles than the common slate, and they have this disadvantage, that they greatly load the roof, considerably more than the Welsh slate, and do not bear the weather so well, neither will they split into so thin pieces: but they have the good qualities of harmonizing and being better adapted for the covering of cottages than the crude blue slate, where thatch is made an objection, such covering many people having a great dislike to; but where thatch is adopted, as on genteel rustic cottages, it should always be kept in a good state of repair. The month of May is said to be the best for this performance.

> "Where houses be reeded (as houses have need)
> Now pare off the mosse and go beat in the reed;
> The juster ye drive it, the smoother and plain,
> More handsome ye make it to shut off the raine."—Tusser's *Redivivus.*

TO ASCERTAIN THE SOUNDNESS OF SLATE.

The greatest value of slates consists in their soundness when split into thin pieces, and their fine texture, by which they resist the entrance of water. Those which are soft and spongy, or loose in flakes and unsound in substance, are bad, as they will let in the rain, to the destruction of the timbers in the roof. To judge of the quality and goodness of slate, let the architect in his first experiment strike some of them against a block of wood; if they ring or sound well, it is a sign that the slate is sound; at the same time let him break one or more, and he will have a further proof. If the slate does not ring well, there is something unsound in the texture, which by breaking will be discovered. After this a further experiment may be tried; let him weigh a few slates, and afterwards

* At Laurgaard, in Norway, there is a beautiful, or at least singular, kind of slate. In this quarter (says the writer) it is as thin as sheets of copper, and has the same metallic lustre and colour. It is cut round or in lozenges, and sits so regularly, thinly, and closely upon the roof, that the houses might have seemed roofed with copper, till I considered how unlikely it was that in this poor country it would be so applied.—(Laing's Journal of a Residence in Norway, p. 31.)

† We sometimes meet with slates which have small pieces of yellow substances sticking in them, like bits of solid brass, apparently inserted by art. These are lumps of a substance called by some people mundic, and composed wholly of sulphur and vitriol: they are faults in the stone, though they look beautiful on a building, and they soon moulder after being exposed to the air, and let the rain through, though some are very hard, and last a long time.—(B.)

‡ Tiles, though extensively used in many provincial towns as well as the metropolis, constitute a very heavy covering for houses; and what is still worse, they injure the timber upon which they are laid, and tend to make a house damp from the facility with which they are penetrated with moisture. All unglazed tiles imbibe a seventh part of their weight of water in the space of ten minutes, and cannot be deprived of this water without a degree of heat equal to sixty degrees continued for six days; it must therefore be obvious, that a roof covered with them can in the country seldom be dry. The timbers also of the roof must be calculated to support their weight in their wet state.—(Bishop Watson.)

immerse them in a pail of water; then, after they have stood some time, take them out and again weigh them, to see what quantity of water they have imbibed: or place them in a pail with sufficient water to cover but half of the slates when placed in it on end; now, if they draw water and become wet to the top in six or eight hours' time, they are spongy and porous, and unfit for use, but if they do not appear wet above an inch or two over the level of the water, they are sound and good.* No material is more deceiving than slate is to the eye, therefore one or other of these methods should be resorted to, for no slates that admit water through should be used, and if at any time such should ever be discovered they should be immediately taken off.

DISSERTATION XX.

ON THE CHARACTER OF PORCHES.

"The rural porch with honey'd flowers,
The curling woodbine's shade embowers."—DR. WARTON.

The porch, now appended to modern residences, which is a projecting entrance with its sides enclosed, was originally to the Gothic church what the portico was to the Greek and Roman temple, and is therefore of sacred origin. When the custom of building manor-houses on quadrangular plans was discontinued, a porch with a room above succeeded the gate-house: those of a single story with a triangular roof, leading to entrance-halls, are of more recent introduction, and are among the few characteristic improvements visible in the Tudor architecture: one, of the date of Henry VIII., may be witnessed at Cowdry, attached to the door leading from the court to the hall.† Those parts of our rural residences belonging to the rustic cottage and the Elizabethan architecture, are in general very picturesque, and such as the painter likes to select and represent in his village subjects. They are sometimes composed of trunks of trees with a thatched roof above, while others are formed of posts and trellis-work.

"Over-canopied with luscious woodbine,
With sweet musk-roses and with eglantine."
SHAKSPEARE'S *Midsummer Night's Dream.*

But the Elizabethan porch was formed with Tuscan pillars on pedestals, supporting a rudely moulded cornice and quaint carved devices, mixed with running vine-branches and grapes, corbels, masks, and nondescript heads, with a pediment and single-span roof over, covered with tiles, having barge-boards and eave-boards of oak scalloped into fleur-de-lis and banner ornaments, with pinnacles and finials above. In fact, sometimes the whole of the Tudor insignia was brought together to ornament the porch. Now where such cottages are embosomed by umbrageous trees, with a pond for curious

* The light-blue sort is always the least penetrable to water, which the deep blue-black is apt to admit rather freely. Good slates will not imbibe above two hundred parts of their weight of water; indeed their wetting is merely superficial, and in summer will dry in a quarter of an hour. Imbibed water not only increases the weight of the covering, but in frosty weather, being converted into ice, it swells and shivers the slate.—(R. B.)

† Mr. Howitt, in his Visit to remarkable Places, beautifully describes the parsonage at Bolton Priory with its porch. "As we descended and walked towards the Priory, the parsonage presented a very interesting aspect. Its garden crimsoned with roses, its old ivied porch, with an ancient escutcheon on it, I believe the Clifford arms, its pleasant shrubberies, and its little garden gateway, up a few steps, overhung on each hand with drooping masses of yellow pomeroy, made it one of the most perfect little rural nests we ever set eyes upon."—(H.)

ducks, overhung with elder-trees, which are occasionally seen in bloom; a small garden, enclosed by rails of oak, bedecked with lichens, and a fine diversified undulating country of hill, wood, and sea, visible in the distance between the opening boughs of the trees, such a combination may truly be said to be sylvan.* To complete the scene we shall give the wish of the poet:

"And may my humble dwelling stand
Upon some chosen spot of land;
A pond before, full to the brim,
Where cows may cool and geese may swim:
Behind, a green, like velvet neat,
Soft to the eye and to the feet,
Where od'rous plants in ev'ning fair
Breathe all around ambrosial air,
From Eurus, foe to kitchen ground,
Fenced by a slope with bushes crowned,
Fit dwelling for the feathered throng,
Who pay their quit-rents with a song.
With opening views of hill and dale,
Which sense and fancy too regale;
Where the half-cirque, which vision bounds,
Like amphitheatre surrounds,
And woods impervious to the breeze,
Thick phalanx of embodied trees,
From hills, through plains, in dark array,
Extended far, repel the day.
Here stillness, height, and solemn shade
Invite, and contemplation aid.
Fresh pastures speckled o'er with sheep,
Brown fields their fallow Sabbaths keep,
Plump Ceres golden tresses wear,
And poppy topknots deck her hair,
And silver streams through meadows stray,
And Naiads on the margin play,
And lesser nymphs on side of hills
From plaything urns pour down the rills.
May I, with look ungloomed by guile,
And wearing virtue's liv'ry smile,
Prone the distressed to relieve,
And little trespasses forgive,
With income not in fortune's pow'r,
And skill to make a busy hour,
With trips to town, life to amuse,
To purchase books and hear the news,
To see old friends, brush off the clown,
And quicken taste at coming down."—GREEN.

DISSERTATION XXI.

ON THE CHARACTER AND USE OF PORTICOES.

"Scilicet umbrosis sordet Pompeia columnis
Porticus aulæis nobilis Attalicis."—HORACE.

The pillared portico was a peculiar feature of Grecian and Roman magnificence: which objects, formed by columns and surmounted by a pediment, in front of their public buildings, were very imposing; and when attached to our mansions, and ascended by a flight of steps, they give at all times

* The author would, after this description, recommend a visit to Knowl Cottage, a perfect Paradisena, the summer residence of —— Fisk, Esq., at Sydmouth in Devonshire.

a grandeur and noble appearance to the fabric. Here something majestic strikes the imagination when they correspond with the character of the building, and are properly and duly proportioned ;* besides having their uses in protecting persons from the rain in the winter, and the scorching rays of the sun in summer, while waiting at the entrance for admission, or on leaving the house while the carriage is drawing up. The beauty and grandeur of porticoes arise from their extent and elevation ; it is therefore to be observed, that they should never have less than four or six columns to produce this striking effect, nor more than eight, to be within the compass of the eye in viewing them. Columns should also be considered at all times as a support for something above them, and not a mere portico, which is well exemplified in the Tuscan porch in front of Covent-garden Church, a design formed by Inigo Jones. That a pediment is at all times the most proper and beautiful manner of crowning a portico, we would refer for proof to the Doric entrance at Covent-garden Theatre, the Ionic portico to the General Post Office, and the Corinthian one at the British Gallery.†

The porticoes in Greece and Rome were of two descriptions. The first formed the vestibule, and decorated the entrance of their temples, and made part of the edifices to which they were attached: these were always surmounted with pediments, and became part of the main roof. The second were erected solely for the convenience of the public to walk under in inclement or sultry weather, conducting from one public building to another, and surrounding others. But these should more properly be called colonnades. In Rome the approach to the Curiæ, the Basilicæ, and the Forum, were generally by porticoes. Several porticoes led to the capitol and lined the sides of the declivity, and the Campus Martius was surrounded by an uninterrupted colonnade: almost every emperor distinguished himself by the erection of a new edifice of the kind.‡

As to the porticoes to private villas, one opulent Patrician family were remarkable in this respect for magnificence. It is said their villa on the Via Prenestina contained baths as large as some of the Thermæ in Rome, had three basilicæ of one hundred feet in length each, and a portico composed of two hundred pillars of the rarest and richest marbles.

All that has been determined concerning the orders adopted in porticoes is established upon what remains of the works of the early architects, and those chiefly from temples. The ancient original orders of the Greeks, as we have observed in the Introductory History of Architecture, consisted of three different kinds :—the Doric, whose character is strength and stability ; the Ionic, which is graceful and elegant ; and the Corinthian, still more beautiful and luxuriant. The Romans, after

* Although the portico is grand, it can only be so when it accords with an edifice; it should not therefore be indiscriminately adopted. But it is really distressing to see how many of the more imposing structures erected in the leading cities of Europe during the last half century, exhibit little else than a servile adherence to the antiquities of Athens. And in situations where the projecting portico could not be erected, they have taken the design, the superficial face of a portico or architectural mask, and stuck it against a wall, were it is neither useful nor ornamental.—(A. B.)

† The ancient temples of Greece and Rome had their entrances formed and finished in this way, and many noble palaces on the continent are so adorned ; but to produce grandeur the columns should always be carried up to the top cornice of the entire edifice, for nothing is so mean as a portico, particularly if it consists of two columns stuck against the front of the building, and which rises but to one story in height, as we see to some gentlemen's seats about the country.—(B.)

‡ " Nero" is said by Suetonius (Suet. Ner. 16,) to havé lined the streets of Rome with a continued portico : several were erected by later emperors of astonishing extent ; such was that of Gallienus, extending near two miles along the Via Flaminia, that is from the Via Lata to the Pons Milvius; that of Gordian in the Campus Martius, which was a mile in length, and formed of one range of pilasters and four of columns, opening upon plantations of box, cedar, and myrtle. The Palatine portico was supported by pillars of Numidian marble, enlivened with exquisite paintings and statues, and emblazoned with brass and gold. It enclosed the library and temple of Apollo, so often alluded to by the writers of the Augustine age, and was deservedly ranked among the wonders of the city. (Propertius, lib. ii. p. 31.) The people of Athens were allowed to assemble in the porticoes and colonnades around the temples; here goods were sold and business transacted ; the Greeks also made promenades of them, and called them *περίδρομος* : here rhetoricians held their schools ; orators haran gued from them, and children of the highest rank were sent for instruction. They also afforded a retreat from heat, and were spacious receptacles for works of art, such as sculpture and painting."—(Classical Tour.)

having seen the Greek orders, adopted a series of their own, but by changing the proportions and ornaments, they composed one entirely new from the Ionic and Corinthian, which is their Composite. The Tuscan, or Italian order, from Tuscany, was added, and thus was constituted their five Roman orders. Whenever we speak of the Doric, Ionic, or Corinthian order, it should imply the genuine Grecian orders; otherwise we say, the Roman Doric, Ionic, and so forth; but some orders are to be met with in Italy that are not of Roman origin, such is the beautiful Corinthian order in the circular temple of Vesta at Tivoli, which was executed by a colony of Greeks.

As to the formation of a portico, the first thing to be considered is the order proper to be adopted; this must depend on the character of the building itself, although too often the Doric is made choice of for the sake of economy, and for this reason we often find the Doric column erected where it should have been the Ionic, and the Ionic where it should have been the Corinthian.* As to the proportion of the columns, we find them differ in the same order. In the Doric portico at Corinth, the column is only four of its diameters in height, while those of the temple of Minerva are five and a half, and the entablature two diameters nearly; and in the Propylæa there are six diameters, and the entablature two. Then as to their intercolumniation, the first is one diameter and a quarter; the second, one diameter and a half; and the third, one diameter and three-quarters nearly. The pediments equally differ, for that of the temple of Minerva rises one-ninth of its width, while that of the Propylæa is one-seventh.

In the Ionic porticoes, the columns of the temple on the Ilissus at Athens are eight and a half diameters; the entablature two, and the pediment rises one-seventh of its width. The columns of the beautiful temple of Erechtheus at Athens, in which the celebrated mysteries of Ceres were performed, are nine diameters, the entablature two and a quarter, and the pediment rises one-ninth. The Corinthian order in the Choragic monument of Lysicrates is eight diameters in height, and the entablature two. The Tower of the Winds at Athens, here the columns are the same; and the columns of the temple of Jupiter Olympus are ten diameters. From hence the inference is, that the Greek architects, during the administration of Pericles, when these buildings were erected, acted more on their own judgment and fine taste than on those supposed rules to which we have since reduced them. Of all the five orders of architecture the Grecian Doric and Ionic are the most chaste; but the Roman Corinthian, with the exception of the one in the Sibyl's Temple at Tivoli, is much richer than the original Greek, particularly that of Jupiter Stator in the Campo, and the Corinthian in the Pantheon at Rome.†

* No portico should, on any pretence whatever, be erected at the front of a public building, without being of such ample dimensions as to admit through its lateral intercolumniations (and that without distorting them,) the largest class of carriages, and should ascend by a very gentle acclivity behind the front columns, which should stand gracefully and simply upon a continuous stylobate or pedestal, a disposition saving the columns of a portico from the anomaly of standing upon detached pedestals; as those of the General Post-Office, which would satisfy in that particular the most fastidious lover of pure Grecian architecture. The late Carlton House, pulled down to make way for a new street, was the work of the great Henry Holland, one of the last of England's real architects, and possessed a fine Corinthian portico of Portland stone, elaborately enriched, under which a carriage could drive: it was large, though not quite large enough to admit carriages without widening the lateral intercolumniations; hence this part of it was free from the unsymmetrical barbarism of having its central intercolumniation distended; and with its fine intrinsic columns, the grandest magnificent entablature perhaps ever enriched, it may justly be doubted whether England ever possessed a portico so fine. The columns of this portico have now reappeared in the front of the National Gallery in Trafalgar-square, but much broken by removal, and after lying some years unappropriated, now reworked into meagreness, and placed in a situation where they are visible from a great distance, and surrounded only by a plain unenriched entablature, and no longer forming a shelter under which carriages of princes and nobles may drive. Truly the once regal and useful portico of Carlton House is no more !—(A. B.)

† I cannot sufficiently express my surprise and regret that the public portico should never have been general in England, and employed in the decoration of the capital. If we consult utility, no edifice is better adapted to a cold and rainy climate; if magnificence, none can be more beautiful or more stately. Every square at least might be lined, and every church and theatre surrounded with porticoes: the want of them round every place of public resort is a real grievance. It is true, it

INTERCOLUMNIATION.

By the term intercolumniation we mean the spaces or distances from one column to another. Perhaps nothing has a more meagre look than a portico where the columns are placed too far apart, or an unnecessary parade when they are crowded together; but the general fault lies on the side of the former. As a rule has been adopted by ancient architects for their adjustment, it is necessary to remark that they never exceeded three diameters in their intercolumniations, except in the Tuscan order, nor did they ever make them less than one diameter and a half, which is that proportion called eustylos, of two diameters and one-fourth, approximating it as a mean proportion to the Ionic order; the diastylos to the Doric, and the systylos to the Corinthian, which in all the porticoes to their temples and other public edifices they strictly observed.*

Palladio, it is to be observed, had a peculiar talent in assigning the orders and ornaments of architecture to the decorations of private edifices; unlike the ancient architects, who seem to have designed and contented themselves with employing them in the porticoes to their temples, and to the lower story only of their public buildings. He introduced those noble objects into domestic dwellings, and committed all their elegant forms and proportions to the different stories of private edifices. However, we must not be understood here to mean that the villas of the ancient Romans were always devoid of these architectural ornaments, for Horace speaks of the columns that decorated the mansions of the rich Romans of his time; but those country seats consisted only of a ground story, like those of the early Greeks:

> "Nempe inter varias nutritur sylva columnas,
> Laudaturque domus longos quæ prospicit agros."
>
> ". . . . Premunt columnas ultimâ recisas
> Africâ."—Hor. *Epist.*

Pillars, which had been designed solely for temples,† we further find had not only been early introduced into other public buildings but into private houses; for Crassus, the orator, was humourously styled Vesta Palatina, on account of six pillars of Hymettian marble which ornamented his house on the Palatine Mount. We learn also from the same author, that Memura, a Roman knight, who had acquired great riches in the service of Julius Cæsar, not only entirely incrusted his house, on Mount Cælius, with marble, but adorned it with columns of the richest species of the same materials. Cicero speaks of a Greek whom he had employed, and complains of his ignorance, or rather inattention, in raising his pillars in the portico of his villa at Arpinum, as he had placed them neither perpendicular nor opposite each other.‡ But I am inclined to believe that such noble decorations were generally confined to palaces and the more celebrated villas of the Romans, or perhaps employed only in the exterior courts and surrounding colonnades.

has been introduced around the Opera House and partly around Drury-lane Theatre; yet our taste in public buildings is still in its infancy when compared with those of Rome, France, and St. Petersburgh. The buildings on the east side of the Regent's Park in London present the finest piece of pillared architecture now in England: here the late Mr. Nash, the architect, has attempted to combine the picturesque with the grand, and no unprejudiced mind can say but he has very happily succeeded. —(R. B.)

* See Vitruvius and the Roman antiquities, collected by Desgodetz, who measured those remains which time had spared. —(A.)

† The classic architecture of the ancients which we now so much admire, we may observe, *en passant*, was the invention of the Pagans, the columns of which applied to their idolatrous temples produce an effect of sublimity and majestic grandeur.—(A.)

‡ "Aliquando," says Cicero, "perpendiculo et linea decet uti." (Ad. Quint. Tratenem. iii. 5.) The portico of the Pope's palace leading to the Scala Regia, is an object too much exaggerated by prints, and like its model at the Spalda Palace, is too

DISSERTATION XXII.

ON CLASSIFYING THE ORDERS OF ARCHITECTURE TO BUILDINGS SUITABLE TO DIFFERENT SITUATIONS.

"All nature is but art, unknown to thee,
All chance direction, which thou canst not see."—POPE.

As nature requires a similitude wherever art is made use of to add lustre to her beauty, so art never more agreeably pleases us than when she has a resemblance of nature; therefore, by a kind of sympathy and attraction, when both are blended or mingled together, so as to be preserved without starting into extremes, they must necessarily give that pleasure to the senses which alone can follow from the nice hand and skill of the designer; hence we see the necessity of observing a harmony of the orders to be classed in a building, according to the locality, spot, and surrounding objects where that edifice is to be erected. I shall therefore here describe the character of the three different situations suitable to the Grecian orders of architecture, each being in accordance with the decoration of the order, which should at all times be previously considered before the architect commits his design to paper, (that is, wherever the Grecian style is to be adopted,) that each may assimilate with one another. We are here referring to rural situations in the country suitable for villas and mansions. First there is the level or unadorned scenery; secondly, the undulating site; and thirdly, the florid, where nature wantons in luxuriancy. Here art and taste should be displayed, but blended together so agreeably as to give a charm and pleasure to the eye of every beholder.

An open, level, champaign country, like the plains of Pæstum in Italy, on account of its solitary and desolate aspect, requires a massy and somewhat plain building, adorned with the Doric order.* But if the edifice has a long extended view, it would be best to range the offices in a

evidently formed for a picture. An inclined plane is not the natural seat of a colonnade. Mnesicles when obliged to build the Propylæum at Athens on an inclined plane, avoided this fault. Instead of sloping, he levelled the stylobate, and led to them by separate flights of stairs. Yet how superior even as a picture is the lower aspect of the Athenian ruin to this studied perspective of Bernini's at the Vatican! but what could be natural that was borrowed from Barromini! Turning round an enfilade, the lofty vestibule, vaulted with gilt stuccoes, and floor paved with various marbles, lengthens on the eye by a grand succession of doors, and niches, and statues, and fountains, till it ends in the perspective statue of Charlemagne. This is one architectural picture which no engraver can flatter.—(Forsyth.)

* At Pæstum there are three temples, each of this order. The origin of the city may safely be referred to remote antiquity, but those are probably in the right who would fix the period at which the existing temples were erected as contemporary with or a little posterior to the building of the Parthenon at Athens; even this calculation leaves them the venerable age of twenty-two centuries. These sublime relics of antiquity stand on the edge of a vast and desolate plain that extends from the neighbourhood of the city of Salerno to the mountains of the Cilento, or nearly to the confines of Calabria. The approach to them across this wilderness is exceedingly impressive. For miles scarcely a human habitation is seen or any living creature save some herds of savage-looking buffaloes that range the lords of the waste. But there the three ancient Doric edifices rise before you in the most imposing and sublime manner: they can hardly be called ruins, they have still such a character of firmness and entireness. Their columns seem to be rooted in the earth, or to have grown from it. The first impression produced on the traveller when he arrives at the spot has often been described. Even the critical and sceptical Forsyth exclaims, "On entering the walls of Pæstum I felt all the religion of the place: I stood as on sacred ground: I stood amazed at the long obscurity of its mighty ruins. The material of which they are built is the same throughout each of the temples and common to them all. It is an exceedingly hard but porous and brittle stone, of a sober brownish grey colour. The stone of these edifices," says he, "was probably formed at Pæstum itself by the brackish water acting on the vegetable earth, roots, and plants; for you can distinguish their petrified tubes in every column."

The brackish water of the river Salso that runs by the wall of the town, and in different branches across the plain, has so strong a petrifying virtue, that you can almost follow the operation with the eye; the waters of the neighbouring Sele (the ancient Silarus) have in all ages been remarkable for the same quality: in many places where the soil had been removed we perceived strata of stone similar to the stones which compose the temples; and I could almost venture to say,

parallel line with the main building, but to recede back a little; then at a distance the edifice will fill the eye with a majestic splendour, arising from the greatness of its magnitude and its solitary grandeur.* For

"While some delight in long extended views,
A noble prospect to some champaign plain,
A rising summit or declining vale,
Half scattered o'er with flocks of fleecy sheep;
Others, perhaps, a rude and barren heath;
The gloom of woods, and solemn lofty groves,
The calm recesses of a mind serene
May be the happy choice of one whose thoughts
No empty glares of pageantry possess,
Or false varieties allure."

The undulating banks within the locality of a noble river, like that of the Ilissus at Athens, or the scenery in Arcadia, require a classic building thus situated to have more decoration: and if the mounds be much varied, and the view be that of nature with an ornamental dress, then the Ionic order will here be the most in accordance, its scroll-work harmonizing with such a site. If the glebe be an agreeable ascent, facing towards the south-east or west, with a lawn or grassy plain in front, and distant hills or woods encircle the rear like a crescent, then a few ornaments on the front of the house may be judiciously scattered in proper parts to give it an enlivening variety; but care must be observed not to use superfluity, for "overdoing is undoing." If the villa-residence be on an agreeable eminence and environed with woods, the principal vista or opening glade should be spacious, to obtain a good view of the house; and here a lofty portico, crowned with a triangular pediment, will add to the mansion, and give it a noble appearance when seen at the end of such an avenue, or when a glimpse of the building is caught between the branches of some noble or aged tree; and the greater grandeur will the part of the house present if not contracted by the avenue, nor brought too near, so as to take off that occasional glow of sunshine which should strike across and separate the verdant lawn from the umbrageous wood. Again

"Another spot, a verdant gradual rise
To orchards laden with delicious fruits,
At once to gratify the eye and taste.
Another scene to groups of lofty pines
The entrance to some pleasing solemn grove
Where demi-deities are feigned to dwell;
Such as the bards who sung Achilles' fame
Described; or Maro of Anchises' race;
Or sweet-tongued Ovid in a softer strain:
Such groves where lofty tops aspiring rise,
And shade in solemn form the winding paths;
Those still retreats that soothe the pensive mind,
Retired scarcely in an evening shade,
Or when the rays of light refresh the morn."

The silent meandering silver streams, the verdant flower-enamelled lawn; the trees majestic, spreading in all the gay profusion of verdure and foliage.

"Insuperable height of loftiest cedar,
And pine, and fir, and branching palm; a sylvan scene,
And as the ranks ascend shade above shade,
A woody theatre of stateliest view."

that the substratum of all the plain from the Sele to Acropoli is of the like substance: curious petrifactions of leaves, pieces of wood, insects, and other vegetable matters are observed in the materials of the columns and walls.—(Mac Farlane.)

* The late King of Naples, in the palace which he built at Caserta, about seventeen miles from the city, sought grandeur from every dimension. This edifice is situated on an immense plain, and is a quadrangle, the front of which is upwards of seven hundred feet long.—(Forsyth's Italy.)

So Milton sang, and such is the scenery at Vallombrosa;* such also is the scenery at Delphi, in the midst of which stood the celebrated and gorgeous temple of Apollo, and where the Castalian fount with its wonderful virtues flowed. Scenery like this, where nature blends in lovely landscapes, bespangled with flowers of richest hue, and where the various-coloured tinting of the shrubs in the opening lawn is garnished in all the pride of dress, demands the rich Corinthian order. Here the architect, like the poet, must have recourse to fancy and a playful imagination; he must mingle his carved floral-work with nature; his ornaments of foliage, flowers, and fruits must deck the fabric, but in everything he must be natural without lavishness.

The same idea of similitude should run through the whole design of a Corinthian building, arising from one degree of dress to another, still preserving the consistency of the parts with the whole, and keeping that just medium in ornament which the nature of the design requires. For such a building there should be in the front a large and noble river, having one or two waterfalls about half a mile distant; then, on the easy ascent of a gently rising ground, should be situated the mansion, with a terrace or large parterre extending the whole opening of the front, with a declivity to the margin of the water.

"From a building thus situate,
Noble cascades and fountains might be formed,
Raised from the silver surface of the stream,
In wanton eddies flowing, circling round,
The verdant softness of its rising side.
Here on its surface the pleasure-yacht may glide,
Or mark in the stream the harmless finny tribe,
Sportive and fearless of the alluring bait,
With silent motion cut the yielding flood,
And fearless glide along the shallow shore,
Untaught by guile to fear the barbed hook,
Securely happy in their element.
The front thus opening to the fruitful vale,
The ends by woods and gardens circumscribed,
Through which the vistas, or more private walks,
Formed by the skilful artist in design,
And well-disposed more distant views to take,
Or winding labyrinths, or secret paths,
Where scattered temples stand, obscurely placed
Within the limits of some solemn grove,
Or seats to terminate a shady walk.
Here the soft music of the feathered brood,
Whose warbling sonnets echo through the wood
In strains melodious, chant from spray to spray;
Some nicely binding up the tender roots
In circling forms, to hold their feeble young;
Others sit silent with uncommon care,
To hatch the shapeless embryo in the shell."

This short sketch of appropriating the various orders to architectural designs, so as to be consistent with certain situations, will, I am persuaded, give a just idea of what sort of buildings are required for various scenes or prospects: but the architect must not expect to obtain a spot suitable for every ideal design; he must survey, study, and compose for the spot itself; otherwise his careless inappropriation will make a rural country residence look either like an alien, or stand forth as a consummate folly, to the disgrace of the architectural designer, and the bad taste of the proprietor.

* Tivoli may vie with Vallombrosa, where stands, on the brow of a precipice hanging over a foaming cascade, the beautiful circular peripteral temple of Vesta, rich in all the exuberance and ornate luxury of flowers and fruits, intermixed with masks of buffalo-heads, pateras, and festoons hanging in catenarian curves. Now here we see soft "Corinth weaves her Dædal coronet of leaves."

DISSERTATION XXIII.

PRELIMINARY CONSIDERATIONS ON DESIGNING AND DRAWING THE GROUND-PLAN FOR A COUNTRY MANSION.

"When we mean to build,
We first survey the plot, then draw the model;
And when we see the figure of the house,
Then must we rate the cost of the erection,
Which if we find outweighs ability,
What do we then but draw anew the model."
SHAKSPEARE, *Henry IV.* Part ii. Act 1, Scene 3.

When a situation has been determined on by the proprietor for his house, the plan and elevation of every part should be laid down by an architect who is well acquainted with the theory and practice of building: he should be left to his own judgment and taste in making out such a plan for the intended edifice as he thinks most fitting and appropriate. No dictation as to the form or shape of the house should be given him, but his imaginative genius left entirely free. A skilful architect will not only make the structure handsome and convenient, but will save the great expenses often incurred in rectifying the blunders of hasty and injudicious management. And here the architect is to remember that he ought, when surveying the ground, to bear in mind that the mansion must be adapted to locality and climate, and also that the external features of the edifice should harmonize with the surrounding scenery. He is therefore to consider well what class of building or style of architecture is most appropriate for the spot.* Nor should he ever undertake to lay down a plan without having first seen the site, or till he has been furnished with a map of the grounds, and a sketch of the local views of the surrounding scenery, pointing out where the scenery is open, and where it is shut out by trees, mounds, or hills. Now let the architect after this commit his ideas of the necessary forms and divisions to paper, in a general outline drawn with a pen and ink in a sketchy manner; this he is afterwards to revise, reconsider, alter, and improve upon where he may consider necessary. By thus adopting or retrenching his first thoughts he will probably improve his design, and introduce better arrangements and nobler masses into the building; for an architect must take good care "not to stumble at the threshold of his undertaking." When the general outline and the internal divisions of the ground-plan are thus matured and laid down on paper, the dimensions of the separate rooms are next to be figured. Then the corresponding outline of the elevations, with a perspective sketch, is to be made from the most general point of view, showing how the house will appear when built. This being done, the architect is now prepared to submit his design to his employer, which is to be accompanied with profes-

* That the different styles of domestic architecture may be clearly understood by the employer, the architect should lay before him either prints or drawings of all the various kinds, and explain the character and scenery most appropriate to each. By this the employer will be better able to judge as to fitness, and to decide upon which he most admires: for that purpose this work will at once answer the desired end, as it shows the difference between each style, whether Greek, Roman, Italian, castellated, or Tudor mansions, these being the most general styles adopted in England. The houses we here allude to are supposed to be for the country, where the architect may employ his playful but judicious fancy: not so in London; here all the houses are restrained or confined perhaps to one or two elevations, that of the front and back. However the plan in principle is the same in both places, for it is only accommodating it to the spot in town where it so happens to be incompatible with that limited or regular scheme of building: but whether for the town or country, the architect must at the first outset always inquire of his employer what family the house is intended to contain, and what sum of money he is disposed to expend.—(A.)

sional observations, and reasons for every part that he has adopted. If any alterations should be proposed which the architect conceives would affect the design, he is to state his reasons freely, and those which are admissible must be blended so as to harmonize with the other parts of his design.*

With respect to the best figure of a house, which we shall treat of separately, a great deal has been said, although perhaps with too little thought, as we must always be guided by local circumstances of site and scenery;† however, more variety may be introduced than at the present period, but not so much as some have imagined. A house may be too much divided and subdivided externally, so as to be internally cut up by little rooms and closets. On the other extreme, it may certainly be too monotonous or plain on the outside, for at all times a house should have a sufficiency of breaks, to produce an equal balance of light and shade, otherwise the glare of sunshine on a flat surface will be hurtful to the eye. Every part of a good house, like notes in music, should accord with each other, and harmonize in one entire whole. In picturesque houses unbounded variety of forms may be introduced; but with all this licence, the imaginations of some architects are so vapid, that the model of one house which they have built afterwards answers for another; and others again are limited to one everlasting block figure, that of an oblong square; whereas in many houses all the varieties may be adopted between that of the regular circle and ellipsis, and that again of the hexagon and octagon, which forms we shall treat of in their proper place.‡

It is certain that a house of a beautiful figure may be erected upon any of the latter plans, particularly cottage-villas in the Anglo-Italian style, and where the picturesque is required; but a house must at all times be commodious and convenient inside, as well as picturesque without, and that sometimes confines the supposed arrangements within a much narrower and compact space than was intended. While we propose variety on the outside, we are also to keep in view chasteness; we must therefore caution the architectural student not to be carried away into errors and absurdities, either by the wildness of his own, or other people's imagination. It is true that in their present general form, houses are too much like each other; and it is also true, that although the oblong is a very commodious figure, it is not the most beautiful, neither is it the only one for convenience, for that must extend to others. This oblong figure appears peculiar among the country builders, but we are speaking of the designs of the professional architect, not the heterogeneous erections of those builders who style themselves architects: what says a certain poet in his Essay on Taste?

* In laying out a plan from a figured sketch of dimensions, it is best at the outset to have a line drawn each way at right angles through the centre of the sheet of paper on which the drawing is to be made, and to work on each side of these lines, that is in setting off the measures, which should be placed along the bottom and up the sides or edges of the paper, and from that drawing them through the plan. But it is to be remembered that several sheets of paper should be put on boards at the same time, at least two or three for the ground and other plans; and the elevations and sections must be all worked on alternately, for it will be impossible to finish each plan and elevation separately without having to alter them afterwards.—(B.)

† The advantages of a situation with regard to prospect are of a problematical nature, as they are so differently valued by different persons. A man of taste will, however, undoubtedly prefer a spot the prospect from which is most agreeably diversified in the distribution of its land, wood, and water; and those who have little or no relish for the charms of nature, will, perhaps, consult their own comfort more than they may be aware of by making the same choice. There are very few so obstinately morose, as to be uninfluenced by the opinions of others; and to observe those about them, particularly visitors, warm in their admiration of the surrounding scenery, may create a beneficial complacency which they would otherwise want.—(A.)

‡ The plans of modern English buildings are in general extremely inferior: the taste for the geometrical beauties of architecture one would imagine to be lost. This is a very grievous misfortune, for an union of circumstance, beauty, taste, and constructive elegance cannot be present in architecture without a due use of geometrical skill. In general, except in very small buildings, regularity and elegance cost nothing whatever, nor needs a true master of design to sacrifice the slightest portion of convenience without beauty, or beauty without convenience, unless he be thwarted.—(A. B.)

" One science only will one genius fit,
So vast is art, so narrow human wit."—POPE.

The reason of their adopting this everlasting parallelopiped figure is obvious,—it is easier to manage; and they have no idea of a house beyond the square; they have no idea of a varied outline and harmony of parts, the picturesque beauty of masses or the sublime grandeur of a whole; and whenever they have a house to build out of the usual form, such are suffered by the employer, of necessity, to copy from a house already erected: whether that building will accord and harmonize with the intended situation or not, is never taken into consideration. Now, although its prototype may look well where it stands, it seldom fails of appearing the reverse on a con trary site.*

All reasonable deviation in one design from that of another is to be aimed at, as we have before stated; but we are to see that we do not sacrifice convenience to change; this is all that is required. That which is new always pleases more than what is common, because the elegant and uncommon will strike the eye of the refined man of taste, whereas they will neglect to observe the usual and vulgar form. These simple hints are the points at which the architect is to aim; let him therefore well consider these things, consult reason, and call in the assistance of art, which has now established the whole practice upon certain rules, and reduced the flights of wild and erroneous fancy to a regular and noble science, worthy the attention of the greatest genius.

THE CONSERVATORY.

The conservatory is a great acquisition to a gentleman's house. In the country it is situated on the ground-floor, either attached to the drawing-room or the breakfast-room; in London, where the drawing-room is on the first-floor, the conservatory is placed on this level also. This beautiful and enlivening appendage has in some cases glass on all sides, and on the top the roof is framed with iron. In peculiar instances the stage is made to revolve, so as to present all the different plants and flowers alternately to the view of those assembled in the drawing-room, without the necessity of shifting the flowers: it by this means also turns those flowers to the sun which most require its influence. There is a very splendid and imposing conservatory attached to a house on the road to Kensington, belonging to an Irish nobleman, whose name at this time I cannot remember. It has stained and painted landscapes on the glass, which when the sun shines produces a most brilliant and imposing effect. I do not recommend the use of stained glass, as it would be injurious to flowers, but merely to block out unpleasant intrusive scenery.—(Author.)

The conservatory is in most respects similar to a greenhouse; where it is attached to the rooms of a mansion but little heat is required, as the plants should frequently be changed; for this purpose a hothouse is a necessary appendage in the garden to bring the exotics to perfection: these plants, when past their bloom, should be returned to the hot- or greenhouse to be replaced by others. Narrow borders are usually planted with dwarf shrubby flowers to hide the walls instead of showing the hot-air flues, which may be under the floor.—(F. W. L. Ross.)

When a conservatory is glazed on all sides, it should if possible be placed south and north, in order that the plants on both sides of the stage should equally benefit from the sun; when placed against a wall, the glazed side may front any quarter except the north. But as the removal and replacing of the roof of such immense conservatories as are sometimes attached to villas and mansions, are attended with considerable expense, risk of breakage, and what is of still more consequence, risk to the plants if they happen to be removed too soon in spring or left too long unclosed in autumn, we should recommend the Polyprosopic roof as by far the most perfect description of a hothouse roof that has yet been devised. —(Gardener's Encyclopædia.)

* It is surprising that gentlemen who generally dislike articles of furniture that are common to others, should nevertheless adopt a plan of a house copied from another building for their place of residence; there is no objection to the idea, or a particular part, but using an expression of Pindar's, " Zounds, you must not take the whole house!"—(A.)

DISSERTATION XXIV.

ON THE GENERAL COMPARTITION OR DISTRIBUTION OF APARTMENTS.

"The architect who is acquainted with genteel life, who has seen the interior of many good houses, and made his observations thereon, is best qualified to lay down a plan. The architect who is not acquainted with these things cannot be considered equal to the task."—DE L'ORME.

Having laid down the general outline of the seat of the house, plan or space which is to be divided into rooms, lobbies, and passages to approach the rooms, and also the stairs to ascend to the upper stories,* the place of the front entrance-door is first to be determined,† and after this we are to proceed to the compartition or inner division of the plan; but for the first consideration we are to proceed with the distribution of the several apartments, according to their destined purpose, position, and use. We are not to take the Romans as our perfect model in this case, because they adapted their buildings to their country and climate, and so must we to ours;‡ for doubtless the principal objects to be regarded in the arrangement and proportions of rooms, are those not only of convenience, but their adaptation for health. With respect to the general distribution of apartments, Palladio, the author of the modern Roman or Italian school, lays down an excellent and universal rule, which is, that "all buildings that are the most beautiful and noble should have their grandest parts placed most in view, and those parts of an inferior kind as much concealed from sight as possible." This is one of the general rules to be adopted in architecture; and though allowed in all countries, yet we see it universally transgressed; even in a large house, where there is the greatest conveniency for its display, there it is most violated. Where the house is intended for a noble proprietor, and situated in a large municipal town or city, like London, and where there is great depth, the house should always be kept back so as to have a court before it and a garden or pleasure-ground behind—"entre cour et jardin"—such is Devonshire House in Piccadilly, the town residence of his grace the Duke of Devonshire.§

To pursue therefore this subject, in such places as afford room for it, we shall also refer to the country mansion. These are the edifices in which the distribution of apartments is principally to be considered, because it is there the architect has scope for his genius. It is therefore those structures of which we are properly to speak of here, and on this first general distribution will depend the subsequent divisions of the plan. Though it is needful to speak of large houses on this occasion, there being in them all the variety of apartments, yet so far as small houses are concerned in their distribution, all that is here said may be applied. The young architect will also here find

* To unite the requisites which a good staircase requires, namely, convenience in situation and form, with a sufficiency of light, affords one of the strongest proofs of an architect's skill.—(B.)

† When the principal door of entrance is in the middle, its communication with every part of the building is not only the most readily effected, but it contributes so much to the symmetry of the front, that when the plan renders such a position inadmissible, a blank door is frequently substituted for a real one, which is then made in the most convenient place.—(A.)

‡ Before these modes are adopted in practice with a literal exactness, let the architect remember that there is a great difference between the climate of Italy and that of England.—(Author.)

§ I have referred to this edifice because I conceive it to be a good example: the court-walls are low, by which the house is seen, and not hidden like Burlington House. But a screen of columns on a dwarf wall in front of Devonshire House, like as was the façade to Carlton Palace in Pall Mall, would have been still more noble. The screen-wall in front of Burlington House gives the building the appearance of a prison, though built by a reputed architect of that day, Lord Burlington himself. There is an exceedingly imposing colonnade, however, inside the entrance, and up the two sides of the front-court of Burlington House, which viewed from the front-door of the mansion, looks like part of an enchanted palace: but what is grandeur when every comfort is sacrificed to it?—(A.)

all that is required in his subject, which he may take into consideration with respect to every other edifice.* In small houses in the country less will come into consideration, and in the common kind of houses in London very little, because they are naturally confined for room and bound down to a particular situation and plan; yet even in these there will be found use for those rules, established upon a good practice, in those which are largest and most free, for every house has its apartments of separate kinds, and its conveniences as far as they will admit.†

The offices, which will be numerous in proportion as the house is large, must be disposed where they will be least observed: in the distribution of such offices they are always to be considered with the wants and conveniences required by the difference of families of fortune, or uses, and where the architect is to consult the general design of the building, and to adapt his proportion and conveniences. In the principal apartments of the house, proportion is to be the chief consideration, joined with convenience, and such proportions are to be performed by rules. In appropriating rooms to proper uses, this is best done by those who study the best houses, and also consider the wants for which families require them, according to the number and quality of the inmates.‡

Precautions must be taken to prevent the effluvia from the kitchen, bakehouse, brewhouse, and other offices from penetrating to the bedchambers and dining-rooms. The most difficult object to attain of this description, is to prevent the effluvia of the kitchen from annoying the latter, to which the access from it should be as easy, and that as circumstances will allow, for the convenience of servants waiting at table. In country mansions, which admit of the greatest liberty of plan, and where the kitchens are above-ground, this may generally be done, by such an arrangement of the doors and passages of communication, that no current of air from the kitchen can proceed directly towards the dining-room. But in town-houses where the kitchen is beneath the parlour-floor, and therefore not only far nearer in point of situation (though not perhaps of access for persons) than it is usually placed in the country, but on a lower level, the lighter warm air, charged with the smell of the various operations of cookery, is apt to be felt above from its disposition to ascend.§

With respect to the situation of the different parts of a house, the study, libraries, and chief rooms, particularly the bedchambers, should face the east.‖ Those of offices which require heat, as kitchens,

* Two things the architect is to aim at in the distribution of his rooms, namely, that the whole building when finished may by that division be rendered graceful and commodious. Gracefulness will depend upon the proportion the rooms have, first, in themselves; secondly, to one another; and, thirdly, to the whole fabric: commodiousness will arise from their being properly disposed, and having a free communication. Violent drafts through the house must also be guarded against.—(B.)

† In all good houses in London there are two water-closets, one on the ground-floor for gentlemen, another on the second-floor near the bed-room staircase for ladies. Water-closets were invented about the close of the sixteenth century, attributed to Sir John Harrington.—(A.)

‡ Offices to buildings are variously situated: some are placed in a parallel range with the front of the house, but kept much lower than the body of the main building; others join the house by a circular colonnade on each side, coming forward at the ends; some by a straight arcade placed at right angles to the house, and others again join the main front in the rear. This refers chiefly to town mansions, but in the country, where room is abundant, the architect has space for his fancy: there the offices should be somewhat analogous to the front of the main house, always observing to make them plain; and where decoration and dress adorn a front, that to the offices should be sparingly introduced. If the offices are placed along in a range with the front, they should fall or sink gradually down by breakings along the summit, and terminate as it were in a point, like a landscape, diminishing from the eye by a gradual shade.—(B.)

§ It may however be effectually removed by a small separate tunnel carried up in the stack with the rest, annexed to that of the kitchen. This funnel, to be used for no other purpose, must have its throat or lower opening level with the ceiling of the kitchen. The lighter air, charged with the vapours of the cooking, will then pass off into the external atmosphere by this aperture, instead of accumulating under the ceiling of the kitchen, until it forms a stratum as low as the top of the kitchen-door, and then ascending through the house by the stairs and passages. The opening of this funnel or pipe may be closed by a hinged door, when no operation is going on in the kitchen which can create a disagreeable smell.—(T.)

‖ The south aspect is most preferable for the principal front, if it can be conveniently obtained, in which should be the rooms of state and grandeur. The east is the most proper for a library, because the morning sun gives an enlivening

bakehouses, brewhouses, and distilleries, such should have southern aspects; and those which require a cool fresh air, as cellars, pantries, dairies, and granaries, a northern one, which is also proper for picture galleries, museums, &c., which require a steady light. As to forms, those rooms the plan of which is rectangular, give the greatest facility to convenience of arrangement, without the disadvantage of losing the space, rendered unavoidable by adopting circular or other curved forms, though those are not to be disregarded. A square is an agreeable form, but it is most proper for rooms not exceeding a moderate size, as it cannot well, if very large, be completely lighted from windows in one wall, and the company while ranged on each side are too far apart. For spacious apartments a rectangular parallelogram or oblong is a more convenient figure; and with regard to beauty, every variation in the proportion, from nearly a square to a square and a half or sesquilateral, may be employed. If the length of the plan be extended materially beyond a sesquilateral, the apartment obtains rather the appearance of a passage or gallery, and it becomes impossible to adjust the height so as to suit both the length and breadth.

It is further necessary to consider that such as libraries, dining- and withdrawing-rooms, principal bedchambers, &c. should be arranged according to existing circumstances, taking care that dressing-rooms be attached to the principal bed-rooms, with fireplaces,* and a door from off the staircase or passage into them, as well as from the bed-rooms, that the servant may enter them to put in the fire in the winter season, as he should by no means pass through the bed-rooms for such purpose; and on the ground-floor, if possible, to place the study or library to the east, and likewise the morning- or breakfast-rooms to the same quarter; the dining-rooms are to be in such places as to avoid the morning sun; though upon every house the sun must or ought to shine in some direction, or it will be unhealthy.

In the common way of building in London the offices are all placed underground; but those houses are built on good hard dry gravel, and with front and back areas; they also join each other in rows, which renders them warm and dry; but this mode if entirely adopted in the country would render the house inelegant, inconvenient, and unwholesome. Here then comes in the use of what the architect calls a basement story, which is the floor of the house below the surface of the ground, though not buried underground entirely: it is sunk about three feet below the level of the country, and is usually and very properly built in front with rustic-work. The first-floor apartments are then raised some height above the ground, and a flight of easy steps leads up to the principal door. This is an elegant and very commodious manner of building among the Italians, and there is something of dignity given to those apartments by raising them above the level of the ground; they are also more healthful, as they are out of the reach of the splashing drops of rain on the ground; and the lower floor, which conveniently holds all the common apartments, keeps the servants near the body of the house. The flight of steps in front is also a very great ornament to the edifice, whether they be plain or more decorated. But such houses are best in the Roman style, and when the basement story is faced with French rustic, it gives an air of solidity to the superstructure: it looks as a rock upon which all the rest is raised.†

warmth to nature, and then the spirits are more open, more active and free in the choice of beautiful ideas to furnish the fancy of those whose genius leads them to the study of the curiosities of art or nature.—(B.)

* Every chamber in a house should, if possible, have a fireplace, the place of which in those employed as bed-rooms, they are not very spacious, should be about two feet or two feet and a half out of the middle, to allow room for the bed. In apartments of twenty or twenty-four feet a side this arrangement need not be studied, as the bed can without it be placed sufficiently far from the fire.—(S.)

† In the first-rate houses in Italy, where there is a garden behind the whole of the back rooms on the first-floor above

Where there is a garden of tolerable extent attached, some of the principal apartments, supposing the situation proper, may very conveniently be placed in the rear of the house. They will by these means be freed from noise and disturbance, and they will have a good light; the garden will also have a good prospect and prove exhilarating, if filled with aromatic plants near the house. Into this garden the best entrance should be by a door in the centre, opposite to the principal entrance of the house; the door for the garden access may be placed at one end, and a sash-door in the centre, and the principal front door still have its proper place. In the larger houses, as there will be numerous rooms, they may be suited to the seasons of the year, as well as to their several purposes. Thus rooms for summer may be placed towards the north, and winter rooms to the south and west, because we seek coolness in summer, and in the winter as much sun as we can have.* Those rooms for summer should also be large and those for winter small, for the same plain reason that a small room is soonest warmed and that a large one is always more cool and airy. This is to be the general distribution and structure of rooms, yet they are continually violated.

The Italians are very exact in this arrangement and distribution of rooms in their houses: they have rooms fronting the east, which are their favourites in spring and autumn, and they always contrive to have them face beautifully-figured gardens or extensive lawns, where there are trees of rich foliage. In both these seasons there is great beauty in nature; the leaves of trees have a fresh and lively green at the time of their first unfolding, which they lose in a few weeks and never after recover; and towards autumn they have a variety that is not found at any other season. All leaves change colour as they fade, and this they do variously, according to their kinds, some earlier and some later. This gives the autumn a colouring unknown at any other season. Painters understand this, and are fond of it in their landscapes, and why should not we be as pleased with it in the reality?

There is the same kind of advantage in the western situation of summer-rooms, though from another source. They command the setting sun, where they are not blocked up by a hill, and this is a source of beauty beyond painting, and beyond all else in nature, to see this god of day descending in all his radiant glory. As to apartments of the noble kind, these have likewise all their destined places, provided other circumstances do not distract, but fortunately concur, and that they be well laid out, and the offices below have also their proper situations and places. The larder, dairy, and wine-cellar must be to the north, which is an everlasting rule, on account of the coolness. It is a most excellent plan to have a cool larder underground or below the surface, in a basement, for the summer season, and to have ice in it as an ice-house, to preserve the coolness and keep the meat fresh: this plan has been adopted in the meat-markets of the Americans with beneficial effects; and upon the same principle of reason, the rest of the rooms are to be situated according to their several uses. All this general distribution is easy when it is thought of in proper time; but the unhappiness of some is such, that they generally neglect it, or cannot see this till it is too late to be retrieved.

It is surprising to see that many of our architects, who have been able to plan out the whole of a

the ground, where there is a flight of steps in front and a portico placed in a line, a suite facing the garden, there the staircase is in front of the house: these rooms consist of a saloon, an anteroom, a withdrawing-room and antechamber, a bed-chamber, and a dressing-room: the windows of all these being towards the garden are very pleasant and exhilarating, and a glance of the eye through the whole range at once has an air of magnificence and elegance. We object to such an arrangement in this country from the inconvenience in the disposition of the rooms, from the necessity of passing through one room to go into another, but the Italians are fond of this *coup d'œil.* I saw the same arrangement in the Palace of Versailles in France.—(Author.)

* I should always advise invalids, whenever they go into the country for the recovery of their health, to be careful in selecting a house where they can have bed-rooms at the south for the winter and on the north for summer, and that those bed-rooms be lofty; this is the most material to health; and also to see that they are free from drafts.—(Dr. Chine.)

good building, have failed miserably in the proportion of its parts; some of those we could name, were it not for the private injury of such remarks in the eyes of a discerning public. It is in this the ancient architects are discovered, by all that remains of their works, to have been most particularly excellent: they formed at once an idea of the whole structure, both as to the internal parts as well as the external, and it is evident they throughout kept that general idea always in remembrance. It is thus we see such a perfect accordance in all their works; and from this, as we have shown in its proper place, is to be ascribed that harmony of parts; and these parts in the least of all their works are perfectly suited to one another. Now it is in this that the young architect, who would distinguish himself in his profession, should principally follow them in the disposition of a house. We err greatly, and the architect can scarcely set any modern model before him that is not defective; whereas, when he turns his eyes back to the ancients, there is not any one in which he will not find perfect truth and harmony prevail throughout.*

DISSERTATION XXV.

GENERAL REMARKS ON THE INTERNAL PROPORTIONS OF APARTMENTS.

"Proportion is the soul of beauty."—BURKE *on the Sublime.*

We have said, that a judicious distribution of the rooms, with easy access to each, is the essential required in a plan: we now come to the internal proportions of apartments: by this we mean that general order of the three dimensions which they possess; namely, length, breadth, and height, all which are essentially necessary to be observed to render rooms beautiful or pleasing in their form. Most people are able at first sight to say whether a room is well or ill-proportioned, although it is difficult to say what the principle is from which this propriety is determined. A room which has a low ceiling and is wide, is in general said to be heavy. A room, on the contrary, which is not too broad and has a high ceiling, is said to be light.† The most common faults, accordingly, which observing people find with apartments, are either in their ceilings being too low, or the rooms too broad: the proportions of height and length they seldom attend to, if they are not greatly violated. The objection to broad ceilings is, that they are liable to sag in the middle, and therefore to crack the plastering; and where they are low, they will produce an oppression on the chest and a difficulty of breathing, which is not felt in high rooms.

To fix on any precise proportion, however, of length, height, and breadth for rooms, that would be a good general rule throughout a house with the greatest exactness, is impossible; for where floors are

* Andrew Borde, in his Dietarie of Helthe, has given us rules for planning and building a mansion-house according to the Tudor manner. He proposes a quadrangle, and directs the gate-house to be exactly opposite the porch of the hall; the privy-chamber to be annexed to the chamber of state, a parlour joining to the buttery or pantry at the lower end of the hall; the pastry-house and larder annexed to the kitchen. Many of the chambers to have a view into the chapel. In the outer quadrangle to be a stable, but only for horses of pleasure: the stable, dairy, and slaughter-house to be a quarter of a mile from the house. The moat to have a spring of water falling into it, and to be often scoured. An orchard of sundry fruits is convenient, but he rather recommends a garden filled with aromatic herbs. In the garden a pool or two for fish. A park filled with deer and rabbits: a dove-house also is a necessary thing about a "mansyon-place; and among other thynges, a payre of buttes is a decent thynge about a mansyon. And otherwise for a great man necessary it is for to passe his tyme with bowles in an aley."

† Too great a height in a room is not nearly so painful as too little height, and too great a length produces a trifling emotion of discontent, compared with that which we feel from too great a breadth. Whether a room is a few feet too high or too long few people observe; but every one notices a much less disproportion either in the diminution of its height or in the extent of its breadth.—(Alison on Taste.)

all of equal heights in rooms of different dimensions, how is this possible? Here arises a difficulty that will always occur, for if one room on a floor is made proportional, the others being of a less length and breadth must, of consequence, become disproportioned. Now there is but one method of remedy, and that, in many cases, is also liable to objection, I mean that of putting in a false ceiling,* which if made level would often bring the ceiling down below the heads of the windows: and, again, the same proportions which are beautiful in one apartment are not so in others. But there are limits to all proportions: to exemplify more clearly what we have said, we will take extremes; thus, for instance, a room twelve feet square may constitute a pleasing form, while a room five times as large, or sixty feet square, would be positively disagreeable. A room also twenty-four feet in length by eighteen in breadth is sufficiently pleasing, but seventy-two feet in length by fifty-four in breadth would constitute a very unpleasing form; and so on progressively in the same multiplying ratio. This must more or less be the case with all rooms on a floor, that are of the same height, and different sizes in length and breadth; here the small rooms are as high as the large ones; a disproportion in some of the rooms must therefore always prevail, unless, as we have said, false ceilings are put in to bring down the height in proportion to the width and length; a thing which is not usually done, and in most cases, as we have seen, impracticable, because the ceiling would then come down on the heads of the windows of the room, which windows are obliged to range with the front outside.

Another cause of this difference in the beauty and proportion of rooms seems to arise also from the character of the rooms themselves: every nice observer must here see that the several forms of rooms, their difference of magnitude, and various other causes, give them distinct characters, as to those of gaiety, simplicity, solemnity, grandeur, magnificence, &c. No room is ever beautiful which has not some such pleasing character; the terms by which we express this beauty are significant of the characters; and however regular the proportions of apartments may be, if they do not correspond to this general character we consider the form as defective or imperfect. Thus the same proportion of height which is beautiful in a room of gaiety or cheerfulness, would be felt as a defect in an apartment of which the character was severity or melancholy. The same proportion of length which is pleasing in an elegant or convenient room, would be a defect in an apartment of magnificence or splendour. The great proportion of breadth which suits a senate-house, and according with the severe and solemn character of the apartment itself, would be positively unpleasing in any room which was expressive of cheerfulness or lightness. In proportion also as apartments differ in size, different proportions become necessary in that respect, to accord with the character which the difference of magnitude produces. The same proportion of height which is pleasing in a cheerful room, would be too little for the baronial hall of a great castle, where vastness is necessary to agree with the sublimity of its character.†

Another cause of the difference of our opinion of the beauty of proportion, arises from the desti-

* Where expense is not a hindrance, the height of the story may sometimes be suited to the principal rooms, and the middle-sized apartments be reduced by coving the ceilings with a flat in the middle, or by groins or domes, which will add to their beauty, independently of bettering their proportions.—(J. S.)

† The relation of breadth and height, which is so wonderfully effective in our Gothic cathedrals, although at variance with all the Greek and Roman classic rules of proportion, would be both absurd and painful in the forms of any common apartment. In general, I believe, it will be found that the great and positive beauty of apartments arises from their character; that when no character is discovered, the generality of people express little admiration even at most regular proportions; that every difference of character requires a corresponding difference in the composition of the dimensions, and that this demand is satisfied, or a beautiful form produced, only when the composition of the different proportions is such as to produce one pure and unmixed expression.—(Alison on Taste.)

nation of the apartment, and climate of the country; for instance, we should be better pleased with a large and lofty room in a warm country than in a cold one; and again, on the other hand, be better satisfied with a small room than a large one in a cold country. All apartments are intended for some particular use or purpose of human life; we demand, therefore, that the form of them should be according to those ends; and whenever the form is at variance with the end, however regular or generally beautiful the proportions may be, we are conscious of an emotion of dissatisfaction and discontent. The most obvious illustration of the dependence of the beauty of proportion on this species of utility, may be taken from the common system that natural taste has dictated, in the proportion of different apartments in great houses. The hall, the saloon, the dining-room, the drawing-room, the library, the chapel, the antechamber, the dressing-rooms, &c., have all different forms and different proportions. Change these proportions, give to the dining-room the proportions of the saloon, to the dressing-room those of the drawing-room, to the chapel the proportions of the antechamber, and every one will consider them as preposterous, unpleasing, and defective forms, because they are unfitted to the ends they are destined to serve. The most perfect beauty that the proportions of an apartment can exhibit, will be when every part is appropriate to its end, or when the same relation of dimensions which are productive of the expression of sufficiency, agree also in the preservation of character and in the indication of use.

DISSERTATION XXVI.

OF THE PROPORTIONS OF SEPARATE APARTMENTS.

"Symmetry is perfection itself."—VIOLA.

As proportion is one of the attributes of beauty, and the rules which guide it little understood, we shall proceed to develope it more at large. Now the proportions of apartments, as we have said, depend very much upon the use to which those apartments are devoted or intended to be applied. In general, however, it is to be observed, that the greater the capacities are, the more the length may exceed the breadth, and the smaller the house the more they may approach to the square. We have spoken of three sizes of rooms, the large, the middling, and the small, and of the necessity of each being formed on the plan in proportion to the whole edifice and to one another;* but there yet remains a third kind of proportion to be considered, as well as that of the several divisions of the rooms, and here now comes in height. We have hitherto considered the room as a part of the house, and had every necessary regard to that as a whole; but we are now to suppose the architect to have drawn in the several apartments on his ground-plan, and is about to transfer them to the section and elevation, where the size or height is to be severally adjusted, and now remains no consideration but that of the respective measures for the purpose and the space each is to occupy. Now as these widths are not so certainly decided but that they may be a little altered if found necessary to the height, (one being made to give way to another,) the architect is to consider that he is not only to adjust the rooms to their lengths and breadths, but their height to both. Now this last is as nice a point for consideration as any in the whole compass of the science; nor is there any part of a building in which writers have established less certainty of rule. For the proportions of length

* Some persons are so fond of having a large drawing-room in their house, that all the other rooms must be made subservient. I remember to have seen a house of this description in Norfolk, and another in Kent, where a room in each was formed so large that all the others became comparatively closets.—(Author.)

and breadth on the plan are much easier to be ascertained than those of the height; for the former we have excellent rules in the works of the ancients, but in the latter we have none that has yet been established or laid down for absolute practice.

In the works of the ancients we find two general proportions of rooms, observed in respect of length and breadth; not that these were unexceptionable, for fancy sometimes exercised itself in this as in other instances, and none have indulged so much in it as those great architects. The two proportions, however, that were accounted most regular, and were most universal in their works, were, first, that one in which the length and breadth were made equal, forming a perfect square; secondly, that wherein the length was just twice the breadth, being one square in breadth and two in length. These were the standards of propriety in their square and oblong-square rooms; and we know by repeated experience that these are measures which suit very happily with one another. This we see, according to Vitruvius, was established into a kind of law.* What comes nearest to a certain proportion in their accounts with respect to height is, that in a room twice as long as wide the length and breadth should be summed up together, and the height then be set at half that measure; thus a room of twenty feet long and ten wide was made fifteen feet high, which in this instance was, but for their large cornices and its being for a warm climate, much too high; however these seem to have been their most established proportions.

Since the Roman period the Italians have observed a variety of proportions, and many of them as happily. For dining-rooms some have divided the length into three parts, and given two to the width; that is, in the proportion of thirty by twenty, the width being divided into four parts; three of those parts were then given to the height, which example would be fifteen feet. For dining-rooms some square the breadth, and then draw a diagonal line from corner to corner of the square, which they give as the best measure for the length and height; but this is excessive for height, though a good measure for the length of some rooms. For dining-rooms in a moderate-rate house one and a half the measure of the breadth is most proper for the length.

The manner of forming the ceiling naturally makes a variation in any given height of a room; we shall therefore recommend to the architect always to fix upon the form of this part before he calculates the height, and to vary that proportion accordingly. As flat ceilings are the most universal, we shall first notice them. Palladio, who is a good authority, lays down a rule for rooms upon the first-floor with flat ceilings, which is that their height be equal to the breadth from the floor to the joist. Upon the second story he varies the height by a considerable reduction; for he orders that it be made less than the breadth of the room by one-sixth, but when rooms on the first story have their ceilings arched, this author makes a difference, and with sufficient reason, for there he allows the height in a square room to be one-third more than the breadth. These proportions are all for large mansions and in warm climates.†

Now we see the ancients in square rooms allowed a greater height, and something is to be said in favour of each practice. These rooms were more magnificent and more light: we have instances of both proportions very exactly preserved in Italy, some in noble houses, built by Palladio, and others in such as are of an earlier date. It is not easy to determine which upon the whole is best, because there are evident advantages in each. The wisest method would be to endeavour at a proportion between the two, which should avoid the disadvantages of both. Such a middle proportion might

* Vitruvius, lib. vi. c. 5.

† The breadth of the principal passages belonging to a moderate house may be one-fourth of the breadth of the principal rooms. The height of the passages should be the same as those of the rooms, but the lengths must be regulated by the building. To take off the heights in passages, they may be groined, or coved, or flat arched segmentally; and over the stairs the ceiling may be domed, having pendentives in the angles.—(Vignolo.)

have these, as well as addition of dignity, in imitation of the *en suite* rooms, and be light enough at the top, though not so light as those of Palladio's proportions. Whoever may set about to reform this eminent master, must remember that it is in England he builds, and not in Italy. The same space will not be so well lighted here by the same apertures as there, where the sky is clear and the sun brilliant; therefore, in establishing what we express by a proportion between the two, he is not to take the exact middle number, but rather something less than half the difference is to be added to Palladio's height. This is taking a mean between the two, though not in feet and inches, because that would be allowed in the difference of the Italian and English feet.

If this were all, the point were easily determined, but much more is necessary, between half and a third of the breadth added to the height: there may be innumerable proportions, the measures being minutely divided; of all these some one is indisputably better than another, but which that one is, has not yet been ascertained with any accuracy in those rooms with arched ceilings, whose length is greater than their breadth. Scammozzi, an Italian architect, directs a height to be formed, by adding the length and breadth, and dividing that measure in half. If a room of this proportion, for example, were twelve feet long and six broad, and had an arched ceiling, the height of it would be nine feet, that being the half of the joint measure of the length and breadth, which added together makes eighteen feet. This is a very plain and familiar direction, but it is further from exact truth and perfection than the other. This error is on the side of excess, not defect, and we advise the architect to endeavour to establish a proper height by repeating his variations, in making rooms of this proportion less and less by smaller degrees in height than according to the rules of Scammozzi.*

The architect will now see that all he can learn of the three dimensions of length, breadth, and height from precept, particularly that of the latter, is but of little use; that a great deal is left to a good eye and a discretional judgment; and that there can be no certain law of height established which can universally and generally answer all the variety of dimensions of plan; it can only be acquired by practice and observation. He who has therefore seen and knows most, will be best enabled to decide and proceed with judgment. In rooms of the more usual dimensions, an architect will be at liberty to vary on every needful occasion, according to his fancy. This is very frequently necessary, but it is never done well unless by him who is master of all the settled proportions.

* As the height of rooms is of the greatest importance to health, as well as in an architectural point of view, this is necessary to be ascertained by some decisive rules. For an English climate, we may observe that the proportion of height is best to be taken from the width of the room alone, and not from the length; and that the principal room on the ground floor (which is to guide the subordinate ones) may be made in height equal to three-fourths of its width: supposing this room to be sixteen feet broad, the height would then be twelve feet. I have seen a room of the following dimensions, which struck me as well proportioned; it was sixteen feet broad, thirty-two feet long, and thirteen feet high. This gave to the height three-fourths and one-sixteenth part of its width.

As example is better than precept, we shall refer to a well-known noble-proportioned room in an ancient mansion, that of Hardwick Hall, in Derbyshire, belonging to the Duke of Devonshire. This once famous but now deserted house was commenced about the year 1592, and finished in 1597. It is in ruins, and save this one room, every wall is shattered and open to the winds of heaven. The building is gray with age, and almost overgrown with ivy, and threatening to tumble about the ears of the owls and bats, which are its sole inhabitants. Still here one majestic room remains entire, called the "Giant's Chamber," from two colossal figures in Roman armour which stand over the huge chimney-piece. This room has long been considered by architects as a perfect specimen of grand and beautiful proportion, and has been copied at Chatsworth and at Blenheim. The measures are as follows: length, fifty-five feet six inches; breadth, thirty feet six inches; height, twenty-four feet six inches; making the height about three-fourths and one-thirtieth part of the width.—(B.)

In square rooms of the first-story, say some moderns, the height may be from four-fifths to five-sixths of the breadth of the side, and in oblong rooms the height may be equal to the width; this is too high, but an error in favour of height is preferable to making a room too low. The height of rooms in the second-story, it is further observed, may be one-twelfth part less than that of chambers below; and if there is a third-story, divide the height of the second into twelve equal parts, of which take nine for the height of those rooms.—(S.)

DISSERTATION XXVII.

ON THE CHARACTER OF HALLS.

"If the hall be too large or too small, too plain or too much ornamented for the style of the house, there is a manifest incongruity in the architecture, by which good taste will be offended. And if the hall be so situated as not to connect well with the several apartments to which it ought to lead it will then be defective in point of convenience."—BOULLANT.

We have now treated of the distribution and general division of rooms on the principal plan, as well as of their proportions; we shall therefore separately descant on halls, of which there are several kinds, both private and public.* In magnificent mansions, the great hall of entrance first attracts our notice, which is immediately approached on leaving the grand portico. This hall should always be made a conspicuous object, both as to its form, and boldness of architecture; and as large as the scale of proportion to the entire building and to that of the rooms will admit.†

The Audience-hall in the Doge's palace at Genoa, is situated more in the interior of the edifice, and is a very superb room, being in length one hundred and twenty-five feet, by forty-five feet in breadth, and in height sixty-six feet: the roof is supported by pillars and pilasters; the space between contains niches, which were once graced with statues of the great men of the republic. It is a folly, however, to sacrifice the rest of the rooms to one, by curtailing them, when their dimensions are within the bounds of proportion; however, in some noble houses its large size is an object of great advantage and grandeur. In the palaces of the Plantagenets, the dining-halls were spacious and superb, as may be seen on reference to King John's palace at Eltham in Kent, and to Westminster-hall, rebuilt by Richard II. in the fourteenth century. The mansions of the Tudors contained still more sumptuous and lofty halls, with high windows, and a louver turret on the roof above. In those halls the family dined, and these were also considered as antechambers, in which people on business of the second rank waited. In the house of a chief magistrate, the hall was an apartment for the reception of large companies at public feasts, and was also a place for the trial of offenders, whom the lord of the manor had the power of trying and convicting. We also read of Cæsar's and Pilate's judgment-hall among the Romans, and Priam's hall of public state among the Trojans.

> "Till from the posts the brazen hinges fly,
> And gilded roofs come tumbling from on high,
> The marks of state and ancient royalty."—POPE'S *Homer*.

On inspection of ancient domestic edifices, we may presume that the architects of the olden time in England kept the principal feature of monastic establishments in view when forming their designs for manor-houses and banqueting-halls.‡

* There is first the Entrance-hall, next the Hall of Audience, and the Judgment-hall; then the Company's-hall, the Guild-hall, and, lastly, the more grand College-hall. Before 1190 the halls at Oxford were built wholly of wood, and covered with straw; they were in the end consumed by fire. They are now of stone, and covered with tiles and lead.—(A. Wood, History of Oxon, p. 57.)

† The grand entrance-hall at Holkham in Norfolk, is forty-six feet by seventy, and forty-three feet high, surrounded by a colonnade of Ionic columns, supporting a gallery of communication above. In the niches under the colonnade are statues. Over the entrance-door into the hall is the following inscription: "This seat, on an open barren estate, was planned, planted, built, decorated, and inhabited, in the middle of the eighteenth century, by Thomas Coke, Earl of Leicester."—(M.)

‡ The hall, which we need scarcely remind our readers has given its name to many of our old mansions, was, in fact, the refectory or dining-apartment, and which in the hospitable times of our ancestors, when the head of the family and his retainers and dependents dined together, was necessarily constructed of large proportions. The hall, with few exceptions, consisted of a lofty and one undivided room, in form of a parallelogram. At the upper end the floor was raised one step, which was called the *dais*, or high-place, designed for the reception of the master of the house and his chief guests, who

Early in the sixteenth century, however, the change of manners gradually led to the withdrawal of the family from the hall, and to the introduction of the dining-room further from the entrance of the house.* We may also remark, that the halls of our universities, especially at dinner, still furnish an excellent idea of the style, and, in a certain degree, the customs of the times of our ancestors. The note below, taken from the Aubery MSS., describes the ancient hall and the mode of then serving at meals.†

An ancient lordly hall was at peculiar times appropriated to other purposes, among which may be named that of the representation of theatrical pieces, while that instructive diversion was in fashion among the nobility. Milton's Comus was written on purpose for such a place of representation, and first performed at Ludlow Castle on Michaelmas-day, 1634, before the Right Honourable the Earl of Bridgewater, Lord President of Wales.‡ These are the reasons for the spaciousness of the ancient hall; but in a modern mansion, if the rule of proportion in those places be not observed, the great size and height may make all those rooms into which we afterwards pass look diminutive. Halls of any consequence are seldom regarded in cities, ground being here more valuable than in the country, unless the house is to be on a large scale, like that of the Duke of Northumberland's, at Charing Cross, in London. In the country it is not so: here it will be easy to take in a few more feet for the purpose, and not to cramp the hall in order to give width to the dining-room alongside of it. The proportion of breadth to the length should here vary considerably: the nearer the hall approaches to a square the better; and from what we have observed in a variety of instances, it seems that from one and a third to one and a half of the breadth is the most proper proportioned length of a hall. The best height, is somewhat less than its breadth; but we are to consider the difference between a flat, a coved, and an arched ceiling; here the height may be within a twelfth part of the measure of the breadth, while in those with the ceiling flat four-fifths of the breadth is a very good general proportion. However, in this the architect, in respect to saving room above, has a great deal of latitude allowed.§

sat at a table placed parallel to the wall. At the opposite extremity, or lower end of the apartment, was an elegant enriched screen or partition of wood, behind which was a passage extending from side to side of the building, where there were doors leading to the "kitchener's" department, buttery, &c. The wooden roof was here the most striking part of the hall, from the richness of the carving, and boldness of its design. The hearth, instead of being placed at the side against the walls, was in the middle of the room; faggots of wood were then, as now in France and Spain, the general fuel, which were placed against a sort of fireiron, called the reredosse, the smoke being allowed to escape through the louver, a light open turret in the roof, generally forming a highly ornamental feature on the exterior, and summit of the roof of the edifice, to which it gave a peculiar character: the windows were placed at a considerable height from the floor, and at the upper end was a large oriel or bay-window.—(B.)

* In public buildings erected for the assembling of certain companies in London, the banqueting-hall is still adopted, but differently arranged.—(B.)

† The lords of manors did eate in their great Gothic hall at the higher table or oreile, the folks at the side-table: the meat was served up by watchword. Jacks being but an invention of the other daye, the poor boys did turne the spit and lick the dripping-pan, and grew to be great lusty knaves. The body of the servants were in the great hall, as now in the guard-chamber, privy-chamber, &c. The hearth was commonly in the midst, as at colleges, whence the saying, 'round about our fire.' Here in the halls were the Mummings, Cob-loaf stealing, and great number of old Christmas plays performed. In great houses were Lords of Misrule during the twelve dayes after Christmas. The halls of justices of the peace were dreadful to behold; the screens were garnished with corslets and helmets, gaping with open mouth, with coats of mail, lances, pikes, halberts, brown-bills, battle-axes, petronells and culverings, and, in King Charles's time, muskets and pistols.—(Aubery.)

‡ The principal performers were the Lord Brackley, Mr. Thomas Egerton, and the Lady Alice Egerton. The music was originally composed by Sir Henry Lawes, who also represented the attendant spirit. In the year 1774 this masque was abridged, and has ever since been performed as an afterpiece at the Theatre Royal Covent Garden.—(Preface to Comus.)

§ The whole that relates to lobbies and corridors, is that they be made as spacious as a proper proportion will admit; but though they must not be made to that excess as to destroy the form and just dimensions of the rooms of the house, and further, to observe at all times that they have sufficient light, for there is nothing more disagreeable in a house than gloomy lobbies and dark passages. These are points of cheerfulness never to be obtained unless the construction of both be

Finally, the architect may be assured that he will never execute that design well which he contrives by piecemeal: all must be planned together and appropriately decorated, and every part regulated upon a just idea of the whole. One good step as regularly attends upon another, as one false one follows upon the heels of another. When the various apartments in a house are well appropriated and proportioned to each other, the walls will have their several regular and just share of their weight of the floors and roof; but when large rooms are made on one side of the entrance-hall of a house, and small ones on the other, and their disposition is varied as well as their dimensions, in that case one side of the house will be stronger and the other side weaker, and the consequence of this will be in the end, the ruin of the whole fabric

DISSERTATION XXVIII.

OF THE FORMS OF VESTIBULES AND SALOONS.

"The vestibule admits of being made a grand pillared object, leading to the staircase, and of any form as to plan."—BERNINI.

In private buildings where beauty and magnificence are studied, the vestibule is generally placed in the centre of the house,* and raised to the whole height of the edifice, and lighted from the top; a gallery or balcony of the height of the principal story being also carried around the interior circumference, for the purpose of communicating with the various apartments. In some mansions in the Italian style they comprehend two stories, with a range of windows above the roof: here the plan is sometimes octagonal. The vestibule at Chiswick-house, near Richmond, a seat belonging to the Duke of Devonshire, is of the octagonal form, rising above the roof, and terminated with an octagonal dome. On the upper sides of the octagon are Palladian windows, which give light to the whole interior: the dome inside is coffered and superbly enriched. This vestibule has no balcony, and was, the last time I saw it, altogether appropriated to the use of pictures.†

The saloon is a splendid columnar apartment of state and grandeur in all great and noble houses, (as well as in palaces,) and its situation is in the rear of the vestibule, towards the garden-front or at the head of a gallery.‡ It is always spacious, of a graceful figure, and continued with great symmetry of enrichment on every side. As to its form or figure, it may be either square, oblong,

well considered at the time when the architect is laying down the rooms, and their absolute purpose kept in mind while the rest is under his consideration. Lobbies are of more importance than passages, they therefore require more consideration. They are frequently ornamented with the orders of architecture, and become considerable objects in the house. The corridor on the outside of a house, when designed to communicate from the main building to the wings, has at all times a noble appearance. The colonnade and the arcade are both of this character; we therefore perceive that they both require our serious consideration, as well as the other parts of the plan of the edifice.—(A.)

* Among the ancients the vestibule was a kind of lobby or entry passage into large buildings, presenting itself before the entrance-hall. (Vitruvius.) It is now formed at the bottom of the staircase.—(Author.)

† This beautiful little villa, after a design of the Villa Capra of Palladio, is a model of taste, though not without faults, some of which are occasioned by too strict an adherence to rules and symmetry: such as too many corresponding doors in spaces too contracted; chimneys between windows; and, what is worse, windows between chimneys; and the vestibule, however beautiful, is yet little secured from the damps of this climate. The trusses that support the ceiling of the drawing-room are beyond measure massive, and the Bibliothèque is rather a diminutive catacomb than a library, in a northern latitude. Yet with these blemishes, and Lord Hervey's wit, who said the house was too small to inhabit, and too large to hang to one's watch, it cannot depreciate the taste that reigns throughout the whole. The larger court, dignified by picturesque cedars, and the classic scenery of the small court, that unites the old and new house, are more worth seeing than many fragments of ancient grandeur which our travellers visit under all the dangers attending on long voyages.—(Author.)

‡ The saloon is a state-room, and much used in palaces in Italy, and from thence the mode came to us. Ambassadors and other great personages are usually received in the saloon.—(Encyclopædia.)

octagonal, or of an elliptical shape. The saloon at Stow House, in Buckinghamshire, a seat belonging to the Marquis of Buckingham, which has been celebrated by Pope in his Essay on Taste, is of an elliptical form, sixty feet by forty-three, having on the frieze of the cornice around the room a Roman triumph in alto-rilievo by Valdre. The Saloon of Hercules, in the palace of Versailles, is the most splendid I ever beheld, and the glory of the French school. It was built by Louis XV. It is sixty-four feet long by fifty wide, and decorated with twenty Corinthian pilasters of marble, the base-mouldings of which are brass, and the capitals of gilded metal, supporting a burnished cornice ornamented in the frieze with trophies. The pedestals are of green verdantique, and the stylobate of the pedestals of Autin marble. The ceiling, the production of F. Le Moine, is one of the finest compositions that exist. Olympus itself appears to open, displaying all the deities of the heathen mythology, with their respective attributes. Nine groups and three compartments represent the labours and apotheosis of Hercules: these groups, consisting of one hundred and forty-two figures, detached from the ceiling in a most extraordinary manner, are enclosed in a fictitious attic of veined white marble, with violet-coloured panels, while over them is the cornice, crowned with oak garlands, in imitation of stucco. In the centre of this saloon, on a pedestal, is placed the statue of Cupid bending his bow, which belonged to the Temple of Love, at the Petit Trianon.*

DISSERTATION XXIX.

ON THE SITUATION AND PROPORTION OF GALLERIES.

"Galleries are built to receive pictures and statues, they must therefore be of sufficient breadth for the eye to see the subjects at the proper distance; and the ornaments must here be subordinate, as the artist who would put such a frame to his picture as should distract or draw off the attention from the picture itself, would be justly condemned."—Da Vinci.

The purpose of a gallery is for the reception of pictures and sculpture, as well as a place of resort for amusement and contemplation. "When the weather," said Addison, "hinders me from taking my diversions without doors, I resort to the picture-gallery."† Now it is essential in a gallery that it have a free and open communication with the rest of the house: it is also intended as a place of some grandeur,‡ therefore it should be approached from an adjoining lobby, and the gallery be spacious and properly disposed to receive a steady light without glare; but as to the absolute size, if built in the body of the house, that must depend and be adapted to the extent and

* The more noble saloon at Blenheim, in Oxfordshire, built by Sir John Vanbrugh, and which communicates with the hall, and together with it occupies the entire breadth of the centre, is highly finished and richly decorated. It is lined in the lower part with marble, in the Italian taste, and its four door-cases are entirely composed of the same beautiful and durable material. Over each door, which face the four quarters, are the arms of the heroic duke. The ceiling, painted by La Guerre, emblematically represents John Duke of Marlborough in the career of victory arrested by the hand of Peace, while Time reminds him of the rapidity of his own flight.—(M.)

† "I frequently," said he, "make a little party, with two or three select friends, to visit anything curious that may be seen under cover. My principal entertainments of this nature are pictures, insomuch that when I have found the weather set in to be very bad, I have taken a whole day's journey to see a gallery that is furnished by the hands of great masters. By this means, when the heavens are filled with clouds, when the earth swims in rain, and all nature wears a lowering countenance, I withdraw myself from these uncomfortable scenes into the visionary world of art, where I meet with shining landscapes, gilded triumphs, cheerful faces, and all other objects that fill the mind with gay ideas, and disperse that gloominess which is apt to hang upon it in those dark disconsolate seasons."—(Spectator, No. 83.)

‡ It should not, however, be so grand in itself as to draw off the attention from the pictures. The gallery in the Collonna Palace at Rome, is itself too brilliant a picture for the pictures which it contains. A gallery should never attract the attention from its contents by striking architecture or a glittering surface. This, however, is supported by polished columns of the richest giall, antico. The storied ceiling displays the battle of Lepanto, which raised a Collonne to the honour of a Roman triumph. Its pavement is Parian marble laid in the form of tombstones.—(Forsyth.)

magnitude of the whole edifice. This, as we have previously observed in former sections of this work, is to be one of the first considerations, for no part of a house can be admired that is not in accordance with the whole.

The situation of a gallery in large houses is sometimes found at the west front, opposite the centre or principal entrance; such is the situation of the picture-gallery in Buckingham Palace, a splendid design by the late John Nash, Esq., (though the north is the most proper.) In some noble houses it is placed in the wings, but here there is frequently to be seen a circular open temple at each end, and which produces an imposing effect. Sometimes again the centre of the gallery rises to a considerable height and is crowned with a dome: such are the variations; but in all cases the light should be received from above, either by a lantern or skylight of ground-glass, admitting a soft and silvery light. But the lantern-light is the most preferable, not being so likely to have the glass broken by hail, or loaded and covered with snow in the winter season. As to the proportions of length and breadth, when the gallery is placed in a wing of a house, the architect is at liberty to vary according as occasion may require, that is, to the size of the paintings it is to receive, for there is nothing so much left to discretion. In general, however, from eighteen to twenty-two feet is the measure or breadth for a gallery, and according as it is required to be longer or intended to be shorter. Some measure between these where the largest or shortest breadth is to be taken; its length may be from four to eight times its breadth,* and its height equal to or rather more than the breadth: other galleries may extend in length twelve times their breadth, but such should be raised to the height of two stories of the house.†

A gallery is not an absolute appendage to a house, for a very good and genteel residence may be built without any such place. It is an apartment, as we have observed, that serves chiefly for pictures; and some may not have a taste for the fine arts, and others again consider it rather in the character of elegance and luxury than of necessity; but such is the state of the mind of some, that when their wants and necessities are supplied, they then think of other enjoyments; and here we are bound to confess, that the enjoyment of pictures is both a rational and laudable desideratum. If lessons are to be drawn from the study of society, history, and nature, surely here they may be contemplated and enjoyed in the representative studies of others, drawn from their rich stores under every vicissitude. Here particular events, the productions of art and nature, are brought into our very houses to be studied, like that of a map of the world, whenever the mind is in a state of contemplation; and at such seasons too it may be enjoyed when the owner is confined to his dwelling by inclement weather, and under circumstances when he cannot go abroad. How delightful where—

> " *Painting* shows the wonder of her art,
> Gains on the sense, and captivates the heart:
> From mimic pencils new creations rise,
> Start into life, and wear their native dyes;
> Bold as the form *Prometheus* taught to move,
> When heaven's dread lightning he withdrew from Jove.
>
> Hail! ye great artists, whose enchanting skill
> Can mould the passions and control the will;

* An eligible length for galleries is five times their breadth, and they should rarely exceed eight times their width in length; their height may exceed their breadth in the proportion of a third, or even three-fifths, according to their lengths. Large pictures, however, require a broader gallery than small ones, for the distance of view requires it, which ought never to be less than twice the breadth of the picture, or such distance as the painter assumed for the distance of the supposed spectator.—(B.)

† Our National Gallery at London, when compared with the Louvre in Paris, is a national disgrace: one is a noble and magnificent building, containing a spacious suite of rooms in succession, where the *tout ensemble* is imposing and grand; the other, a gallery of cells, divided and subdivided.—(Author.)

Not to the eye your labours are address'd,
They boast an influence o'er the ductile breast;
For while entranced each happy touch we view,
The moral sense becomes reformed by you;
Beauty and order, harmony and ease,
Unite to polish, as they tend to please."

This then, which is only a part of a noble house and intended for a splendid show, requires to be finished in every part with the strictest care, for there is no apartment in which a fault will be so soon observed or so hastily censured, as it will come under the scrutiny of men of absolute taste.

The sculpture gallery, if distinct or detached, may receive its light from the sides. The one at Woburn Abbey is perhaps worthy of our notice.* The western wing, or Temple of the Graces, was erected by the late duke, in the year 1818, to receive the splendid group by Canova. On the architrave of the portal is an inscription by Samuel Rogers, Esq., paraphrased from the fourteenth Olympic of Pindar:

"Approach with reverence, there are those within
Whose dwelling-place is heaven, daughters of Jove;
From them flow all the decencies of life;
Without them nothing pleases: Virtue's self
Admired, not loved, and those on whom she smiles,
Great though they be, and beautiful, and wise,
Shine forth with double lustre."

The cella of the temple is circular, and measures fifteen feet in diameter; the walls are incrusted with yellow scagliola, in imitation of Sienna marble, and the floor is paved in mosaic, with variegated Devonshire marbles in circular ornaments; in the centre is placed the group of the Graces, Aglaia, Thalia, and Euphrosyne, on an antique circular altar. The east end of the gallery, a Temple of Liberty, contains a select collection of Greek statuary; and amongst the works of modern art is the celebrated statue of Psyche by Westmacott.

The galleries in the ancient mansions of England before the arts had made such progress, were appropriated not to pictures exclusively, but also to the reception of visitors, and afterwards for amusements and conversations. Their walls were then chiefly indebted for their embellishments to a multitude of royal and family starched-up portraits,

"In peaked hoods and mantles tarnished,
Sour visages enough to scare ye,
High dames of honour, once that graced
The drawing-room of fierce Queen Mary,"
(Gray's *Long Story.*)

painted on boards in carved frames of walnut or cherry-tree; maps, and tables, "of the owner's arms

* It is one hundred and thirty-eight feet long, twenty-five feet broad, and twenty-two feet seven high, and about thirty feet in the centre, where it is surmounted by a dome having a flat ceiling: the centre is separated from the two sides by eight antique marble columns, the shaft of each consisting of one piece, about thirteen feet six inches high, and crowned with a white marble capital of the composite order, very richly foliated. The shafts and capitals were all found (according to an account which has been printed for private distribution, by the late Duke of Bedford,) in excavations made at Rome. Of the columns, two of breccia Africana, two of a variegated kind of alabaster, two of Cipollino marble, and two of Reggio: the entablatures are also enriched, the whole presenting two of the finest screens in the kingdom. On the south side is the Apollo Belvedere, and opposite to it a semicircular recess, with a reticulated ceiling, containing the Lanti vase. This large and magnificent object of Parian marble, and of the first Greek sculptor, was found in excavations made in the ruins of Hadrian's villa at Tivoli, and was brought to England by Lord Cawdor: it is of the lotus form, and is one of the most noble specimens of antique decoration of the kind yet discovered. The diameter of this vase is six feet three inches, and its height, exclusive of the plinth on which it stands, six feet. The circle beneath the bowl has a bold moulding, as has also the rim. Eight grotesque masks decorate the bowl in extremely bold relief, each connected with the festival of Bacchus; and the vase has two magnificent handles, chanelled throughout, and ornamented with fennel, a plant dedicated to Bacchus.—(M.)

and genealogical tree," where miniatures in oval frames were hanging to the branches, and a long train of ancestors could be boasted. Some of these pictures are still to be met with.

In Elizabeth's reign, when the manners of the people became more improved and their minds enlightened, the arts rapidly shone forth; pictures then in considerable numbers adorned the houses of the opulent, some of which had been sent from foreign parts as presents; those of most value generally had curtains drawn before them. Shakspeare in some of his plays takes notice of this custom. Sir Toby Belch, in his Twelfth Night, asks, "Wherefore are those things hid? wherefore have these gifts a curtain before them? Are they like to take dust, like Mistress Mall's picture?" (*Act I. Scene* 3.) And in Troilus and Cressida, Pandores says to Cressida,

"Come, draw this curtain, and let's see your picture."
Act III. Scene 2.

The most valuable cabinet pictures are still so curtained up in some of our galleries at the present day.* In the gallery of the late Thomas Hope, Esq., in Mansfield Street, near Portland Place, in London, large curtains are suspended from the ceiling on each side of the gallery, and drawn backwards and forwards on brass rods, in the French window-curtain fashion.

DISSERTATION XXX.

ON FRONT ENTRANCE-DOORS.

"The ancients, according to Vitruvius, generally made their principal entrance-doors trapezoidal, i. e., rather narrower in breadth at the top than at the bottom, probably from their having the property of closing themselves."—Newton's Vitruvius.

The entrance-doors of stately houses are frequently adorned with porticos in the Roman or Grecian taste; but such should be ascended either by a single or double flight of steps, which formation has many advantages; first, by ascending to the principal floor, they are a great ornament, and may be formed into any degree of elegance, according to the taste of the architect or desire of the proprietor: the principal floor is likewise rendered much more cheerful and healthful by being elevated, and a good rustic basement is given below for the better sort of servants.

There is perhaps no part of domestic architecture that has received so much improvement in the metropolis as that of front entrance-doors, and that within the last twenty-five years, previous to which time a street-door was generally formed in six panels, the four lower ones being oblong in height and the two upper ones square; now we have variously designed doors, but the double-margined is the most handsome: this door is used for the entrance generally, and distinguished by a three-quarter or inch bead passing up on each side, and dividing the middle style into two parts, giving the whole door the appearance of two single doors joined together. In some instances it is in one door, at others the door opens in the middle with two leaves: the panels are variously disposed, but that door is considered the most handsome where there are two square frieze-panels at the bottom, two also at the top, and two long panels in the middle: the mouldings around the framing and the enrichments are also various; some panels are raised flush, others are flat with a sunk Grecian frett, and some have the frett raised; others again have an astragal on the panels, and some

* This instead of preserving the pictures has been found to injure the colours.—(Author.)

have honeysuckle ornaments at the corners. Other designed doors have two frieze-panels in the centre, and two long panels above, with two shorter ones below. Those doors that have knobs on the styles and cross-rails are exceedingly handsome: but such knobs are best made of lead and cast or; they may be formed of hard wood; but the knobs must always, in fact, be confined to outside doors.

The doors in the buildings of the ancients were generally made very lofty and spacious, that is, the doors of the Greek and Roman temples, not those to their domestic dwelling-houses; these were generally made low, on which the security of its occupiers depended; "For he that exalteth his gate," says Solomon, "seeketh destruction." (Proverbs, xvii. 19.)* The former divided the width of the door into two divisions of equal square panels, separated by a large bead: the panels were six and sometimes eight in height, richly moulded, and had a patera in the centre of each panel. As those doors were generally under a portico, the panels were sunk, and the face of the mouldings projected, in some instances beyond the square of the door, called belection-mouldings. The Egyptians made their doors in the form of the frustum of a pyramid, that is, narrower at the top than at the bottom, to correspond with their pyramidal edifices, and as the Greeks had studied their architecture from the Egyptians, so we sometimes find among their works the inclined door. Now these have in too many instances been imitated among us, even where they have appeared ridiculous; this inclined effect might be given with equal propriety, and much more convenience be produced, by giving a greater breadth to the bottom of the architrave than at the top, but here a projecting square in that case should be formed in the Etruscan manner.†

In proportion as the house is large the front door must also be enlarged; this is a universal rule,

* It should be remembered that the Oriental houses do not front the street, but rather resemble that of Northumberland House, in London; and that the entrance from thence leads to a court, in which, or in another beyond it, the front of the main building appears. Hence little indication can be gathered in the street concerning the probable character of the interior building, or the rank or wealth of its inmate, but from the appearance of the gate. Aware of this, and aware also that to excite the cupidity of the ruling powers by any indication of wealth is to seek destruction, the wealthiest persons are careful, among other precautions, that their gate shall not betray them, by being higher than the gates of their neighbours. In going through a street the doors are almost invariably of the most beggarly description, very low, some in Persia not being above three or four feet high, and although strong, formed of rough unpainted wood; and the traveller visiting a person whom he may know to be wealthy, is surprised to be conducted to a gate which in his own country he would consider unworthy of a stable or an outhouse, and which but ill prepares him for the splendour and luxury which he may probably find when he reaches the interior. Yet the Orientals are vain of appearances; and it sometimes happens that a wealthy man so far forgets himself, or thinks he has such grounds for confidence, as to exalt his gate; but it rarely happens that he has long to wait before he finds cause to learn that by this act he sought his own destruction. In the city of Bagdad, says a traveller, the only exalted gate to a private residence which I recollect to have seen, belonged to the house of a Moslem of large wealth, and of so much influence in the city as he thought might allow him to display it freely. He was mistaken: one day when riding through the street in which he lived, he was dragged from his horse near our door, and put to death on the spot, by order of the pasha, who immediately took possession of all his property.—(B.)

† Doors turned anciently upon large pivots in the centre, let into sockets in the lintel and threshold, so that one of the sides turned inwards, the other opened outwards. Plutarch gives the following curious reason why persons were to knock and alarm the porter, viz. lest the visitor entering unawares should surprise the mistress and daughter of the family busy or undressed, or servants under correction, or the maids quarrelling. These ancient doors were sometimes made of marble or metal, but cypress was a wood, from its durability, so valued by the ancients, that doors made of it at the Temple of the Ephesian Diana lasted, it is said, four hundred years, and others at Rome, that were covered with silver, five hundred years. In Holy Writ we read of folding-doors, (1 Kings, vi. 34.) and of curtains for the door of the court. (Numbers, iii. 26.) The great palace-halls in Persia are usually open towards the garden in front; and when closed in summer, it is not by doors but by rich curtains or hangings, which are considered preferable to doors, as they admit the air while they exclude the sun.—(Sir R. Porter.)

It was customary in England during the Tudor period to mark the entrances to sheriffs' and magistrates' houses by ornamental pillars; sometimes painted and gilt, called sheriffs'-posts, on which were posted proclamations, and such other public notices as were promulgated by those officers.

"He set up his bills here."—(Cymbeline.)

"He says, he'll stand at your door like a sheriff's post."—(Twelfth Night.)

but we are astonished on considering how this rule has been transgressed. We have even seen at one period doors made of such height that a person would think every house inhabited by a giant:* on the other extreme, as weak minds in avoiding one error always run into another, we have seen them lose the form and fashion, grace and dignity of entrances to a noble habitation, by doors the very reverse, formed apparently for dwarfs. It is enough to observe that all extremes are to be avoided; one of them is as much a fault as the other. There are variations allowed (but limited) in proportion to the height with the breadth, which must be appropriated also to the general form of the house. Two things are to be considered in designing an external door; first, the aperture; next, the strength; and third, its ornaments or dressings;† these must all enter into the mind of the architect when he is designing and laying out the plans of an edifice, whether public or private, or he will never proportion or adapt it to the structure.

It is not an unwise plan, as now frequently practised in second-rate houses, in detached situations, in the suburbs of a town, to have the entrance-door at the side or end of the house, as it at once brings the door nearer to the stairs, and therefore saves the space of the passage along the side of the front room. If a porch and lobby were likewise built at this entrance-side of the house, a hall and an ante-room might also be formed in addition, without breaking in upon the body of the house. A corresponding room, for the sake of uniformity, may be built on the other side, as a library. In houses in the country, where two or more are built together in groups, it is the most convenient arrangement that can be devised for saving of room: when there are many so built there is sometimes a colonnade formed between them and parted by a wall; and at other times an open porch. The Venetian door with side-lights produces a very noble appearance, within a Greek or Roman portico; but it is to be lamented that we frequently meet with Doric porticos unaptly and very inappropriately put to the fronts of private dwelling-houses, where the architecture is in every respect of a different character.

"How long should I be ere I put off to the Lord Chancellor's tombe, or the shrive's *posts*?"
(Every Man out of his Humour.)

"The *posts* of his gate are a-painting too," i. e. he will soon be a sheriff.
(Old Comedy, by Thomas Dekkar.)

"If ever I live to see thee sheriff of London I'll gild thy *posts*."
(Woman never Vexed.)

"A pair of such brothers were fitter for *posts* without doors, indeed to make a show at a new magistrate's gate."
(Widow.)

"My Lord Maior's *posts* must needs be trimmed against he takes his oath."
(To the Painter's Owle's Alm. p. 52. Nare's Gloss.)

There are two posts of this description, beautifully enriched, yet standing at the door of Hengrave Hall; but the practice of publishing official documents in this manner having been long discontinued, their introduction in buildings now would be useless.—(H.)

* The entrance-doors of palaces and the mansions of noblemen, where much company resort, are often made from four to six feet wide; those of public edifices may be from six to eight feet wide, and high in proportion, though they are not meant to be at all times opened to their whole height, hence they are to be parted eight feet up by a rail where they are to open.—(B.)

† The most common mode of adorning entrance-doors is to surround them with an architrave surmounted with a frieze and cornice, forming a complete entablature. These decorations in good houses are made of artificial or real stone, wherever a suitable kind can be obtained at a reasonable price.—(S.)

DISSERTATION XXXI.

ON THE VARIOUS FORMS AND PROPORTIONS OF INTERNAL DOORS.

"Doors should always be proportioned to the building and to the rooms, and not guided by modern custom, or that just sufficient to admit the entrance of a tall person."—*Essay on Design.*

As to the forms of internal doors, these have not met with the attention that has been bestowed on the external ones, the latter being more commonly observed by the public eye. The internal door in its form generally consists of four panels, at other times of four, and two frieze-panels in the middle; at others again in the old fashion,* that of the two frieze-panels being placed at the top of the door. In the four-panel doors, the two bottom panels are much shorter in height than the upper ones, but this is regulated by the middle rail, for the convenience of the lock, which is for that reason sometimes called the lock-rail. The centre line of this lock-rail comes in a horizontal line with the surbase-moulding, which is about two feet eight inches in height, but since the discontinuance of the surbas-moulding, or what is sometimes called the chair-rail, the height of the middle rail of the door has been altered; now the middle of the entire height of the door is taken for the top edge of the middle rail, which is much better, and indeed a very good proportion. The six-panel door was formed like the four-panel, with the exception of two frieze-panels at the top: these being generally square, and in height equal to the width of the other panels below. The four-panel door, when well proportioned, is certainly the most handsome for every kind of room in the interior of a moderate house, either for town or country, but for the outside of a house they do not appear sufficiently strong, as they have too much panel and too little framing for strength.

With respect to the whole height of doors internally, and the apertures especially, there is a universal law founded on reason, though not always observed; and there is a certain height below which they should not be brought, although for dignity and proportion, the point beyond which they may exceed is almost unlimited. Palladio was of opinion that no rule could be given for the proportion of doors, while others have asserted that twice the width is a good standard for the height; but this we shall show to be inconsistent, because in that case internal doors in small houses which are but two feet six inches wide would be but five feet high; now a man could walk through a doorway of this height, but not one of this height without stooping. Doors which are two feet six inches in width are generally made six feet six inches high, and those which are two feet nine inches wide are six feet nine inches high, and a door of three feet wide is made seven feet high. So we see from this, that after the smallest proportioned door, wherever the larger ones have been increased in breadth the same proportion has been added to the height; the first instance being three inches in breadth, was also increased three inches in height; the second gained six inches in width was also increased six inches in height.†

* In the early part of the sixteenth century the joiners' work in England was rude, as is particularly visible with respect to internal doors; these were seldom framed till Elizabeth's time, when doors were panelled. At Penshurst, in Kent, most of the doors to the kitchen, larder, and similar offices are of split oak, never touched with a plane, but reduced to their proper dimensions only by the chisel and the hatchet, sufficient proof of their antiquity.—(Howitt's Visits to Remarkable Places, p. 25.)

† Doors are varied in their dimensions according to the height of the story, and the magnitude of the building in which they are placed. In private houses they can rarely with propriety be made wider than four feet, and in general three feet will be sufficient. For small doors, when the height is to the breadth in the ratio of seven to three, the proportion may be considered good, but the height of large doors needs not to be more than double their breadth. In modern houses it is not

Now if the eye can fix on any one proportion for a door, then another door of any given width or height may easily be formed by drawing a diagonal line from one of the lower corners of the door through the opposite corner of the door on the top, and where it cuts the given line at top or on the side, will be its point for obtaining the line to the one given in all cases.

ANCIENT LOCKS.

The locks to domestic dwellings appear always to have been the same as those used to ecclesiastical edifices, but the ancient lock has now been superseded by the more convenient, neat, and secure mortice-locks of modern times. There are still many examples of ancient locks, which are peculiar for the beautiful ornaments on them, and on the scutcheons; one in Henry the Seventh's Chapel is remarkable for its beautiful tracery, and another of this kind is still to be seen on the door of the great hall at Beddington, in Surrey, an ancient seat of Sir Francis Carew,* built about 1597, well worthy of notice, having on it the arms and supporters of King Henry VIII.

The bedchamber locks and bolts of our monarchs at this period seem to have been movable articles, and were carried about by his smith wherever the king went, as the following account from the privy-purse expenses of King Henry the Eighth shows:—

1532. July. Item, paide to the smythe that caryeth the lock aboute w^{h} the king in rewarde . vij*s.* vj*d.*
Sept. Item, paide to the smythe for bolts and rynges for the kinge's chambre-dores all the time of the progresse . . . . . xl*s.*
Dec. Item, paide to the smythe that caryed the lock to Calys, and for his charge all the way . . . . . xlvj*s.* viij*d.*

It would also appear that the bedchamber doors of our monarch at this time had sometimes a plurality of locks, and that one was called the "privy lock," as a note in Nichols' Progress has this remarkable passage: "The Lady Elizabeth hearing the privy lock undo, ran out of her bed to her maidens."

The device of making locks to open by adjusting letters impressed upon them for that purpose, is not a recent invention, for in Beaumont and Fletcher's Noble Gentleman, one is alluded to with the word *Amen:*

"A cap-case for your linen and your plate,
With a strange lock that opens with Amen."
(Beaumont and Fletcher's Plays.)

In the highlands of Scotland wooden locks are still existing, so artfully contrived by notches at equal distances, that they can only be opened by wooden keys which belong to them, and match the notches.—(Fosbrook.)

Holingshed gives the following most incredible account of a lock made, as he says, in 1579: "This yeare, in the moneth of Maie, Marke Scaliot, blacke smith, citizen of London, borne in the parish of St. Clement's Dane, without Temple Bar, and now dwelling in Cornehill, neere vnto Leaden-hall, for triall of workemanship, made one hanging locke of iron, steele, and brasse, of eleven several peaces, a pipe keie filed three square, with a pot vpon the shaft, and the bow with two esses, all cleane wrought, which weied but one graine of gold, or wheat-corne—a thing almost incredible, but that myselfe (amongst manie others) have seene it, and therefore must affirme it to be true."—(Holingshed's Chronicles, vol. iv. p. 406.)

ANCIENT HINGES.

The doors of the ancients did not turn on hinges but on pivots, as they still do in the East, which were sometimes of metal, but generally of the same substance as the door, which worked in sockets below and above in the lintel and threshold, so that one of the sides opened inwards and the other outwards. As the weight of the whole door rested on the mere pivot, it opened with much less ease than one mounted on hinges, particularly when the lower socket became worn by the weight and friction. The modern butt-hinges, where only the knuckle or head is seen when the door is shut, like that of the mortice-lock, is a great improvement on the flourished strap-hinges of the Tudor period, which were nailed, bolted, and riveted against the front of the door; but the numerous and diversity of forms which door-hinges had at that time branched into were almost endless, particularly those on their cypress chests.† Coffers and chests at this period were

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uncommon to have large folding-doors, the opening of which serves to throw two rooms into one. In such cases the width of the aperture will generally be of less height than twice its breadth, as all the doors of the same story are commonly of the same height, although these doors may have the addition of an upper frieze-panel added to their height where the common door of the room is of four panels.—(R. B.)

In the house of Sallust at Pompeii, we find, instead of folding-doors, that curtains were drawn on rods, like those of our windows, and to the common internal doors they had them in like manner. These are mentioned by Corippus, who gives, like the ancient Romans, similar ornaments to the Byzantine Atria. In his Justin Minor, he says, "Cara superpositis movebant atria velis."—(Rosin. 46.)

* Sir Francis Carew planted the first orange-trees seen in England, at this seat; they were placed in the open ground, and protected by a movable shed, but were destroyed by a hard frost in 1740.

† There is a very ancient and curious cypress chest in the possession of my much-respected friend F. W. L. Ross, Esq., at Topsham, which ought to be engraved. It is most sumptuously ornamented with carved work, representing Scriptural and other interesting subjects. The dimensions of the chest are as follow: six feet long, two feet wide, and two feet deep; the sides, ends, and cover are each one inch and a half thick. Although it is very old it shows not the least symp-

the general repositories for articles of every kind; writings, apparel, food, and even fuel were kept in them. Many of these chests, which were raised on feet to protect them from damp and vermin, were beautifully ornamented with carving and other sumptuous enrichments. "In ivory coffers," says Gremio, "I have stuffed my crowns; in cypress chests my arras, counterpoints," &c. Cypress, known in Holy Writ as Gopher-wood, was selected for its rare properties of neither rotting nor becoming worm-eaten. The ivory coffers were small, and either carved or engraved in devices, with silver or gilt locks and ornaments, and were used for keeping jewels and other valuables.* In 1523, Sir William Compton, Knight, bequeathed to King Henry VIII. a little chest of ivory, whereof one lock is gilt, with a chess-board under the same and a pair of tables upon it, and all such jewels and treasure as are inclosed therein.† Small coffers of silver are also mentioned. Large trunks, in which clothes, hangings, &c. were packed for removal, were called trussing-chests: they were substantially made, and bound in every direction with iron straps, wrought into fanciful and multifarious forms; and secured by locks of artful and curious contrivance. The same sort of metal-work was, indeed, applied to coffers of lesser dimensions. Two standard chests‡ were delivered to the laundress of King Henry VIII.; "the one to keep the cleane stuff, and the other to keep the stuff that had been occupied."

Many of the ancient hinges were not only branched and wrought into scrolls and leaves, but terminated with roses, fleur-de-lis, and other florid devices in the Florentine, Flemish, and arabesque styles, and were occasionally still further ornamented with inscriptions, which were to be met with in the Tudor structures of that day, particularly in the ecclesiastical edifices. On the church door at Dartmouth, in Devonshire, the hinges and their scroll-work cover nearly the whole surface, representing a tree with its roots above-ground, with a leopard on each side. In Solomon's house the hinges were of gold, both for the doors of the inner house and that of the most holy place.§

DEVICES ON SECRET DOORS.

On secret doors many ingenious devices have been painted as deceptions, perhaps none more curious than are to be met with on a jib-door to a bookcase in the library at Killerton Park, the seat of Sir Thomas Dyke Acland, M.P., of Broad Clist, in Devonshire. Take these as specimens: "Playfair on the late Formation of Trap;" "Trap on Fictitious Entries;" "Friend's Right of Entrance;" "Continuation of Chambers;" "Pasquin at Home;" "Treatise on the Law of Partitions;" "Mullington on Covered Ways;" "Noah's Log-Book;" and "Snug's the Word, by a Clerk of the Closet." The titles on the sham books near the hinges, are alike appropriate, but more quaint, viz., "Squeak on Openings;" "Bang on Shuttings" and "Hinge's Orations."—(From my Note Book.)

Garrick's sitting-room, in his house at the Adelphi, in London, had a jib-door so contrived as to appear when shut precisely like the other parts of the room, and, of course, not easily to be found but by those who had been used to it. One day a tailor came to him on business, which after being finished, the tailor bowing and intending to leave the room, was unable to find the door; searching all round the room in vain, and affording much amusement to Garrick, whom I heard relate this circumstance while he was in Sir Joshua's painting-room, which had a door of a similar kind.—(Northcote's Life of Sir Joshua Reynolds.)

Perhaps the largest and most ingenious, as well as difficult door of this kind that has ever been constructed, (which is always difficult to execute well) is at Northumberland House, in the outer court-wall adjoining the Strand, and at the right-hand

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toms of decay. The hinges are ancient, and flourished with scrollwork and fleur-de-lis ornament; they are as bright as silver, the lustre it is supposed being preserved by the oily and balmy nature of the cypress wood.

The inside of the cover is divided into three compartments, and ornamented with historical subjects; the borders surrounding these compartments contain celestial figures within an ornamented band of foliage and scroll-work. All the carved work is sunk, engraved in hatching-strokes on the shaded sides, and burnt and softened off with hot irons, producing the appearance of monochromatic painting. In the centre compartment is represented a terrestrial globe, on which are seen ships sailing, curious animals, and the globe itself supported by two winged figures. The right-hand compartment contains a picture carved, that of the judgment of Solomon, where the two harlots are addressing him respecting the living and dead child. (See 1 Kings, iii. 16, 17.) In the compartment on the left hand of the centre is represented the armed guards about to divide the living child. In smaller compartments on each side of these are Hebrew warriors, each armed with a spear and shield; and in the top border are angels playing on lutes; in the lower one are birds of the falcon kind amid foliage.

The front of the chest outside is divided into three large and four smaller compartments, inclosed within mouldings: the centre panel contains a group of centaurs, male and female, the latter holding a young one in her arms. In the right-hand panel is represented a king in a tent, sitting on his throne, giving judgment on a prisoner, who is brought before him by his guards. On the left hand the panel contains the same prisoner undergoing decapitation in the presence of the king, who is here sitting under a tent. In the smaller compartments of each is a satyr: one carries a goat on his shoulder with a tortoise at his feet; the second is blowing a horn, with a trident in his right hand and a snake at his feet; the third, also blowing a horn, is accompanied by a greyhound; and the fourth carries a stag followed by a dog. Among the foliage are storks, and celestial figures playing on musical instruments.

The ends of the chest on the outside are each ornamented with a dragon with expanded wings.—(Author.)

* Paid William Grene, the king's coffer-maker, for making of a coffer covered with fustyan of Naples, and being full of drawe-boxes, lyned with red and grene sarcynet, to put in stones of diverse sorts, vj*l.* xviij*s.* j*d.* And to Cornelys, the lock-smythe, for making all the iron-worke, that is to saye, the lock, gymowes, handles, and rynges to every drawe-boxe, the price xxxv*j*s. iv*d.*—(From a Record, temp. Hen. VIII., quoted in the Privy Purse Expenses.)

† Testamenta Vetusta.

‡ The inventories generally describe these chests as "standards." Henry VIII. paid for half a year's rent for a house in London, for the standing of the great standards with the rich coats of the guards, 17*s.* 4*d.*—(Privy Purse Expenses.)

§ 1 Kings, vii. 50.

side of the general entrance-gate towards Charing-cross. The face of the door is painted to imitate the brick wall of the house itself with which it ranges, and so well is the whole performed, that it would be with difficulty that a stranger could find it out, though the door is of an immense size, being intended to admit carriages through. The whole iron railing outside also moves in mass with the door itself whenever it is opened, which is used only at stated times, that of routs.

ANCIENT PAINTINGS ON DOORS.

Aubrey describes the doors of the upper story of Lord Bacon's seat, Verulam House, at St. Albans, to have had painted outside of them, in dark umber, "figures of the gods of the Gentiles." Those of Solomon's Temple were of carved work.* Devices and sentences were also frequently painted on the panels of doors. In Tusser's "Five Hundred Pontes of Good Husbandrie," there is a sort of posies or proverbial rhymes to be written in various rooms of the house, such as husbandrie posies for the hall, posies for the parlour, posies for the guests' chamber, and posies for their own chamber.

The Manor-house of Northumberland, a seat of the noble Earl Percy, who was celebrated in the ballad of Chevy Chase, had a profusion of these posies and proverbs. In one of the rooms was a dialogue of thirty-two stanzas, between the "Parte Sensatyve" and the "Parte Intellectyve;" and in another, a poem of thirty-two stanzas, a "Descant on Harmony." There were also proverbs in the earl's library of twenty-three stanzas, of which the following is a specimen:

"To every tale geve thou no credens:
Prove the cause before thou give sentens;
Agayn the right make no dyffens;
So has thou a clene consciens."

And in another room was the following:

"Punyshe ye moderately, and discreetly correct,
As well to mercy as to justice havynge a respect;
So shall ye have meryte for the punishment,
And cause the offender to be sorry and penitent.
If ye be movede with anger or hastynes,
Pause in your mynde, and your yre repress:
Defer vengeance unto your anger sswagede be;
So shall ye mynyster justice and dewe equyte."

Northumberland Household Book.

DISSERTATION XXXII.

ON THE INSIDE DECORATIONS OF A HOUSE.

"The walls in the interior parts of houses in the early ages in Great Britain were not at first plastered, but hung with tapestry: after this wainscoting became the fashion, and at a later period it was customary to paint pictures in the panels." —HARISON'S *History of England.*

There is no branch of architecture in which we may not receive instruction from the practice of the ancients: they were the first and great inventors of the science, and it was they who perfected it. We see in the remains of their labours, which the malice of the times (now passed away) has spared, everywhere lessons of gradual improvement; and as we have no progressive history of domestic architecture, I have on all occasions throughout the preceding dissertations interspersed historical evidence with practical detail, whenever it could be obtained; I shall therefore do so here. Now in all the ancient structures we see a dignity which is not so much as attempted in those of modern works, for our ambition runs into another channel; we sacrifice the noble to the pretty, and would rather what we finish should be called fine than great. The ancients were of a contrary mind; they admitted ornament it is true, but without luxuriancy; they indulged in fancy, but not at the expense of judgment; and they considered first the essential parts; they began with plainness, and they advanced to decoration. The original mode of finishing a room among the classic

* And the doors also were of olive-tree; and he carved upon them carvings of cherubims and palm-trees.—(1 Kings, vi. 32.)

nations was at first by covering the walls with an encaustic plastering: this they made as fine as our well-trowelled stucco, and afterwards painted them with figures and landscapes.*

In the course of time a change took place; columns, so graceful on the outside of a building, were at last brought into the apartments of magnificent houses, and arranged round the walls with their pedestals, bases, capitals, and entablature, thus supporting around the room the whole ceiling, which appeared as a necessary weight above. After this the architects soon brought a portion of the decorations of the more magnificent rooms into such as, though elegant in themselves, were yet in their nature of less dignity, and completed upon a less expensive plan. They understood an order duly proportioned to be a very good measure and guide for the decorative parts of a building. Thus on the lower part of the plain wall they raised from the floor the pedestal of a column, with its base, die, and cornice, which they also continued round the room, now called by the moderns the skirting, dado, and surbase. Here the wall was now carried up plain without the columns to the ceiling, where they had a cornice. Though they did not, in those rooms where there were no columns, at all times adopt the whole cornice, in resemblance of the entablature; nevertheless very proper for conformity where there was this kind of embellishment; still in those plainer rooms it would have been too much, therefore the pedestal with its mouldings alone was continued round the lower part of the walls, and the cornice of the entablature round the top near the ceiling; thus were furnished those plainer or second degrees of rooms.†

* This was found to have been the case at Herculaneum and Pompeii. And in Holland the walls of the rooms are still generally painted with a series of landscapes in panels. This method was also occasionally practised in England during the Tudor period, when even falls of water were commonly met with on the walls.

"Then collours cast they o'er the walls, and deckt old houses gaye."

Tapestry or arras was very early used for covering the walls of superior apartments. The making of hangings with figures came first from Babylon, from whence they were called Babylonica.—(Plin. lib. viii. c. 48.)

See Cowley's Davideis, book iii.

"He spoke, and straight led in his thankful guests
To a stately room prepared for shows and feasts:
The room with golden tap'stry glister'd bright,
At once to please and to confound the sight,
Th' excellent work of Babylonian hands."—(Cowley.)

The most ancient tapestry now existing is preserved in the church at Bayeux in Normandy, and exhibits an entire series of the circumstances attending William the Conqueror's descent on England.

The arras was loosely hung on projecting frames by tenter-hooks against the walls, (which were sometimes not even plastered,) covering the whole surface from the floor to the ceiling, and was, like most other furniture, removable from one residence of its owner to another. Shakspeare makes constant allusion to arras being used in the decoration of walls.

"..... First, her bed-chamber;
..... it was hanged
With tapestry of silk and silver; the story,
Proud Cleopatra when she met her Roman;
So bravely done, a piece so rich that it strive
In workmanship and value."—(Cymbeline, Act II. Scene 4.)

Again Spenser,

"For round about the wals yclothed were
With goodly arras of great variety,
Woven with gold and silk, so close and nere,
That the rich metall looked princiley."
(Spenser's Fairy Queen, Book iii. Canto 28.)

The walls of the gallery of York-place, at Whitehall, in London, the residence of Cardinal Wolsey, and seized by King Henry VIII., were hanged with cloths of gold and tissue of divers makings, and cloth of silver likewise on both the sides, and rich cloths of bondkin of divers colours. (Cavendish's Life of Wolsey.) In the seventeenth century the walls of the rooms were covered with leather, having gilt edges.—(A. M. R.)

† Among the Romans ivory inlaying seems to have become rather a common method of ornamenting the interior of mansions owned by the wealthy. Horace mentions it as an evidence of his humble way of life, that no walls inlaid with ivory adorned his house. (Ode xviii. b. 11.) And Lucan shows us that ebony was used next to ivory. (Pharsalia, x. 119

Having shown this, and of which an idea of the original might be seen in the ruined temples of Balbeck and Palmyra, (which are of Roman origin,) we shall next see how the like decorations of skirting and cornices were afterwards brought into plainer rooms; that is, such rooms as had not the dignity of the pedestal, columns, and entablatures. Now, by taking away the stylobate, the cornice of the same, and that of the columns, the whole was at once accomplished in all its true relative proportions, and agreeably to the height of the rooms. This was the precise origin of the splendid, the moderate, and the more simple manner adopted in decorating apartments by the old masters; and this it is necessary in large mansions and public rooms still to adhere to by the modern practitioners.

The columns being now removed and the original system not known, many of our young architects have run into error in these decorations. Ornament, it must be remembered, is the medium between what is necessary and what is overfinished: ornaments ought to arise only from the right ordering of things. And between the Grecian and the Roman ornaments there is a great difference; the former appear mostly adapted for internal apartments, the latter for external decoration; the one is effeminate and delicate, the other bold and well relieved. The great care is at all times to give equality of ornament; no part is to be crowded, nor any left wholly vacant, and plain surfaces are to be judiciously intermixed to give relief and repose to the eye, and these are to be united into a pleasing whole. Nothing can be elegant which is not proper; it is the same in every part of architecture. There is a great beauty in having some parts of a cornice plain while others are enriched: two successive carved enriched mouldings should never be placed together; they create confusion, and savour more of expense than of taste. Neither is it sufficient that enrichments are beautiful, they must also be appropriate or they lose half their merit.*

DISSERTATION XXXIII.

ON DECORATIONS OF CEILINGS.

"The ceilings of ancient palatial buildings were covered with ivory plates, which moved and turned round in such a manner that at intervals they could make the ceiling rain flowers and perfumes."—MONTFAUCON.

We know nothing of the method the luxurious Greeks adopted in ornamenting the ceilings of their domestic residences, unless we suppose it was like that of their temples, which is very pro-

et seq.) We may infer from this, that they were associated when used for interior ornament; and this was doubtless for the sake of the effect obtained from the contrast, as intimated by Virgil, (En. x. 135,) when he tells us, that "the Dardan boy," with "his radiant temples bare," shone

> "Like wrought ivory, when the workman's sleight
> Circles with ebony the glossy white."—(Symmons.)

We would therefore venture to suggest that the ebony was employed to form a sort of panel-work in numerous compartments, disposed in complicated but regular forms; the ribs or framework, being of ebony, and the compartment filled up with the polished ivory. This idea is suggested, says an Eastern traveller, by the frequent occasion we have had to notice such panel-work in different parts of Western Asia, particularly as used for ceilings. In this case, however, wood only is used, often valuable wood; or, if not painted, the ribs being gilt or painted with a colour different from that of the body of the work, so as to suggest the idea of a different substance. The Orientals still exhibit much partiality for inlaying their grand apartments; but we are not aware that ivory is now employed for this purpose. Looking-glass is commonly chosen, and some of the most splendid halls of regal palaces are thus inlaid. Ornamental work in stucco is also much employed in interior decoration; and the manner in which certain prominent parts are covered with gilding, other parts richly carved, with intervals of clear white, has often suggested ideas of the ivory, ebony, sapphire, and fretted gold, which ancient descriptions give us.—(E.)

* As a guide for ornamenting rooms, let it be remembered, that the enrichments of the dining-room should consist chiefly of fruits: that of the drawing-room, of flowers: the library, of laurel-wreaths: the music-rooms, of lyres and musical-instruments. To give light to the rooms, the cornices should be carried further on the ceilings, and less down on the walls, and to be deep cut in the quirks, and well-contrasted by light and shadow on all sides of the room.—(B.)

bable; these were divided into small square coffers, sunk with carved mouldings on the inside. Some of their ceilings are supposed to have been formed only by planks, as the Greek word *φατνωματα* implies; but when they had ornamental panels between the beams, they were called *lacunaria*. Some had neither, but only figures and ornaments formed in stucco inside the roof.*

The ancients, who had more genius than the modern architects and a nobler fancy, had also more severity of judgment. It is therefore not wonderful that with those advantages they excelled and brought together all we have been able to produce since; but knowing this as the source of their excellence we know how to study them. Many of our architects err not only in the degree of appropriation of ornaments, but in their very nature; the ancients never offended the eye in any of these particulars: it is therefore from them alone that we can deduce a juster knowledge of decoration. The first thing that would naturally offer itself to a thinking mind, would be the division of the ceiling into compartments or frame-work, and the next suggestion to the imagination would be that of decoration, by adding mouldings in those divisions. Even this, when the ornaments are carried no further, has its simple beauty; and few would think, who have not seen it executed, how much grace there is in the mere divisions of a ceiling constructed with taste and judgment. This we may call the first stage of ornamenting a ceiling; the previous in a less degree, that of an absolute flat.†

For the second degree, we shall name the addition of carved-work or enrichments of these mouldings, the centre of the compartment being as yet unadorned. This executed in the Greek manner is both chaste and beautiful; but it does not here follow that all the squares shall be equal; there may be one judiciously large, such as six or nine feet, formed in the centre, and coffers of about eighteen inches in two or three ranges between that of the walls and the centre quadrangle; or there may be two or three large squares, the centre one being oblong, with smaller ones judiciously arranged around them.

The third degree of ornamenting is by placing flowers in the centre of those squares; this gives a greater richness to the ceiling, and if the mouldings around the coffers are enriched, the whole will at the same time be exceedingly graceful. These are the various changes or progressive advances in decorations as applied to ceilings in genteel houses; and in those ceilings perhaps no enrichment is better, where dignity and grace are consulted, than the Greek ornament, such as we find embellishing their

* The hypæthral temples of the Greeks, of which we may refer to the Parthenon, at Athens, has its naos or cell separated by opposite colonnades into three divisions, answering to the nave and aisles of our cathedrals, and has a double ordinance of columns, the upper series of which anticipates the cathedral clerestory: over the naos it is open to the air; the sides only over the aisles are roofed: the ends of the naos show the pediments.—(W.)

The ancient Romans, under the republic, ornamented in the same manner as the Greek coffers, but had a rose in the centre of the panel, as we see in the Pantheon still existing, built by Agrippa. The more modern Romans, during the empire, gave scope to every fanciful device and decoration, which they lavished. After dividing the whole ceiling into squares, the ceiling appeared like an Italian flower-garden suspended overhead, in which were roses and other flowers, combined with shells, masks, cornucopiæ, Mercury's wands, eagles, and grotesque ornaments, mixed with foliage and scrolls. The more wealthy Romans were however particularly fond of splendid ceilings, so much so, says Alberti, that they seem to have bestowed upon them their chief attention. They were ornamented with plates of gold, glass, and brass gilt beams, and sculptures of statues, crowns, and flowers; and he adds that the ceilings, generally arched, had ornaments imitative of the seasons, which silversmiths disposed in pateræ; and in sleeping-rooms were copies of the patterns which decorated bed-clothes. This fashion of the Romans, who detested naked spaces, is well exemplified in the vaulted ceilings of the Tepiderium of the baths at Pompeii, while that of the Caledorium is entirely covered with transverse flutings, like that of emerald columns. The Romans began simply and ended in a labyrinth. Varro recommends a ceiling made to resemble the sky, with a movable star and index (radius), which within would show the hours of the day, and without, the direction of the wind.

† Chambers in farm-houses and humble dwellings had formerly no ceilings, a custom not uncommon anciently in the upper rooms of our colleges at Oxford: these were vaulted with reeds bruised and flattened.—(A. Wood's Oxford.)

orders, namely, that of the honeysuckle, the acanthus, and the pomegranate. If the mansion be in the Greek style, the rooms should be ornamented in that character, and the architect must duly attend to this for their due perfection and truth; that is, where purity of taste is to be considered; nevertheless, in palaces and the most noble mansions of the great, we allow on certain occasions the use and mixture of such appropriate, and more particular ornaments, as are suitable to the character of certain rooms. Such insignia will often describe the destined intention of the apartment.*

It has been made a just observation, that in dress and decoration those ornaments should be natural, and all the parts have an analogy to the purpose of the room, and between each other. Suppose, for instance, ornaments in a ceiling of a room to be the cross representative beams enriched, which should in that case at all times be laid with their ends over the piers of the front-walls, the panels will then answer to the windows, and the margins be preserved. The same order must be observed with respect to the sides of the room; then in standing at the fireplace on one side of the room, the ceiling of the opposite side will answer to the divisions of the walls, and the whole correspond in their lines. Few persons have strictly observed this system of order; but as a proof of its consistency and harmony, where it has been adopted, we would refer to that sumptuous palatial Roman ceiling, designed by Inigo Jones, in the banqueting-house at Whitehall, where the truth of these remarks will readily be admitted, and of the necessity of the architect observing this method when dividing the compartments of a design for a public edifice, and what difference of effect it has where fancy alone has directed the designer in his choice of decoration.

Since the days of Inigo Jones we have been retrograding in the art and ornamental parts of our ceilings; this has arisen from the introduction of the Grecian style of architecture, which is less gorgeous than the Roman. Two hundred and thirty years ago they were all deep and gloomy recesses, loaded with carved-work, representing foliage, fruit, and shields; they are now ornamented with a cornice around the walls, appropriate to the purpose of the room, and a flower in the centre of the ceiling, from which the chandelier is suspended. In large and lofty rooms, the Roman cove-cornice has a handsome and noble appearance, and particularly in assembly-rooms, where the large cove in that case is ornamented with figures, emblematical lyres, scrolls, and foliage, richly gilt and picked in with colours.†

Besides the decoration of ceilings of dining-rooms, drawing-rooms, and the library, that of the hall and staircase demands our attention. When we enter a room, from the variety of objects taken in by the eye from place to place, the furniture as well as decoration claim their divided share of attention; but in passing up the stairs the eye is naturally directed to the sides and the ceiling; this accounts for the beautiful finishing usually bestowed upon these parts of an edifice: here the ceiling generally has a flower, the sides being finished with pendentives, which give it an air of grandeur and dignity, at

* See the last note of the former Dissertation. (Author.) At Penshurst, in Kent, the seat of the Sidneys, the house is all English, and English of the right date, which is rarer still. The ornaments are taken from the family arms; and while they continually remind you that you are in the abode of the Sidneys and the Leicesters, you are also reminded, by the freshness of all the finishings, that you are there too in the days of their polished descendants.—(Howitt's Visits to Remarkable Places, p. 17.)

† A French traveller has lately shown us this was the practice with the Greeks in their ornamental work in the friezes of the cornices of their temples, as well as the custom of the Romans, the Lombards, and the Goths. Ultramarine blue, vermilion, red, and sage-green, mixed with bronze and gilding, were then the prevailing colours. In decorating of ceilings, where taste and fine workmanship are required, we have some excellent examples at Mamhead, the seat of Sir Robert William Newman, Bart., in Devonshire, executed by Mr. Walters, plasterer, of Paris-street, in Exeter, who has lately discovered an excellent and very durable cement, which he is now using for mosaic work.—(R. B.)

a height so far above the eye, and with its relief by light and shade, a great picturesque beauty. The cornice in the hall is generally represented heavier than the cornice of the adjoining dining- and drawing-room; there is also at most times modillions in those cornices: sometimes the ceiling of the hall is groined or finished with cross-arches.

ARCHITECTURAL CONSIDERATIONS.

IN THE INTERIOR OF HOUSES WHAT TO BE MATERIALLY CONSIDERED.

"Understanding a thing clearly is half doing it."—LORD CHESTERFIELD.

The architect should, in the outset, place the doors, windows, and chimneys where they may be most convenient. A door ought to be so placed as not to convey a draft towards the chimney in a sitting-room, or towards the bed in the dormitory story.

The windows are to be so placed that the fire made in the chimneys may not attract the air and moisture, and so prove the most unwholesome part of the rooms to those who are sitting near the fire.

Too much glass in rooms makes them cold in winter, in consequence of attracting and condensing the moist air; and hot in summer, because glass draws the heat of the sun's rays.

Rooms are best to be lofty, because we breathe freer in them. We never find fault with their being too long or too high, but we do with their being too low or too broad.

Rooms are better to have too much than too little light, because such rooms are cheerless and unwholesome where the windows are small; but when too large, the light may be reduced by the addition of the window-curtains, which should be borne in mind.

A house is not healthful where you cannot get a current of air through it in the morning to carry off the stagnant air: for this reason a house which has a staircase-window at the back is much healthier than a house without it.

Doors must always open towards the fireplace, so that a person sitting there may not be too hastily or suddenly apprised on a stranger entering the room.

In libraries, chimneys in the French style, situated under the windows, are very convenient and comfortable, being placed so as a person can sit by the fire in the cold weather and occasionally look out of the window. Over such fireplaces a marble slab should be placed on the top as large as the whole opening, and receding back to the window.

A fireplace should always, if possible, be placed in the centre of the side of the room in which it is situated, and the piers on each side of the fireplace be made equal in breadth, and have a moderate projection into the room: four inches and a half looks well, but they should never exceed nine inches, otherwise the fireplace will look heavy.

A house built of stone should always have its external walls battened inside to keep off the damp, which will otherwise occur on every occasion of wet weather, presenting itself on the surface and destroying the paper; neither will the plastering hold well on the stones if not so done.

A stone staircase in a house is far preferable to a wooden one, being more secure against fire, which is an important consideration. It is also the only sure means of escape in a country mansion from that devouring element.

Sacrifice a portion of the well-hole of the staircase in all first-rate houses where you are confined for room, to give length to the steps, so as to admit of two persons abreast to go up and downthem.

Stairs to bed-rooms may have more rise or be steeper than those of the first-floor. Half-spaces and quarter-spaces are at all times better than winders, which latter should never be introduced from choice but only from necessity.

Dining-rooms should be made proportionably long to give room for a large party, and wide enough for the servants to pass freely round the guests sitting at table.

Kitchens should be both large and lofty, on account of the great heat from the large fire: these rooms require to be high to hang up hams, sugar, dried herbs, &c.

The size of a hall, lobby, or passage may be reduced, if required, to give width to the dining-room alongside.

The size of the breakfast-room may also be reduced, if found necessary, to give more length to the dining-room adjoining.

Bed-rooms should be made large and lofty, and the plan of the bed always laid down by a scale on the plan of the rooms, to show what space there will be around the bed.

All bed-rooms should have a fireplace in them: this is a very important matter and wholesome practice, for at night, when the windows are all shut, the breathing will be impeded without a fireplace to ventilate the room.

Fireplaces should never come within the range of the bed, so as to have a draft across the room.

Bed-rooms in the north side of a house are not so healthy as those in the south, for want of the sun to purify them: they will answer for summer rooms exceedingly well, but there should be other bed-rooms for the winter season.

In country seats the drawing-room should be on the ground-floor. In large towns or cities they are generally on the first-floor.

The library should be on the east side of a house, as the morning is the most proper for study. It also receives the early rising sun, which takes off the moth or mouldiness which would otherwise cover the books. When the windows look south and west, the air from that quarter is subject to moisture; moths are bred and dampness incurred, whereby your maps and pictures quickly become pale, losing their colour, and this settling upon the canvas or paper produces decay, and precludes all hopes of recovery.

ARCHITECTURAL CAUTIONS.

FAULTY PARTS IN THE INTERIOR OF HOUSES THAT ARE TO BE AVOIDED.

"Prevention is the better cure,
So says the proverb, and 'tis sure."—Dr. Cotton.

You should not, when you advance into a house, at one moment find yourself in an Egyptian room, next a Roman, and then a Grecian one.

Rooms should never be made low, because they are oppressive to the lungs as well as being unhealthful, for the air ascends and lodges against the ceiling, and the top part of the room is never so healthy as near the floor. Some people cannot breathe in a low room.

Rooms should not be too broad, because the ceiling is liable to sink in the middle, and such rooms are generally cold in winter on account of the fireplace being so far from the opposite side, unless there are two chimneys, one on each side.

Rooms must not have too little light, because it makes them cheerless, dull, and not so healthy: it is better to go to the other extreme, that of too much, because that can be reduced by the window-

drapery. This does not appear to be sufficiently considered by our young architects at the time of setting out, or forming their plans.

Heads of windows should never be brought too low down from the ceiling, because a well of stagnant air will be formed above, which cannot be carried off. This is of more consequence than is generally supposed.

Room doors should never be placed directly opposite the fireplace, because of the drafts. It is the nature of cold air to rush towards hot, and not hot air to the cold; and this is the reason that, when we are sitting opposite the fire in the winter season with a door behind us so situated, we feel the cold so intensely at our back, while at the same time we are scorching in front.

Parlour doors are frequently placed too near the front door, by which the cold air comes into the room, and also prevents persons from sitting near the window, where it is at times desirable to be seated. The door to such rooms should always be placed further into the passage, that is at the end near the staircase.

Avoid long passages in a private house as much as possible, for they have many objections, and perhaps none greater than that of exposing the family as they cross from one room to another. They are also liable to draft: though they were common in the Tudor era, that does not make them less objectionable; our ancestors, though less refined, were much hardier than we are at this period. In hotels and public buildings long passages are still very general and proper; they are also in those houses more convenient.

Avoid steps, either up or down, from one room to another, for they are often stumbling-blocks not expected in a house; they also sometimes occasion serious accidents.

Let all rooms communicate with the staircase, for it is a bad arrangement where you are obliged to cross one room to get into another. This observation is not to be applied to doors leading from one room to another, for a good suite of rooms in a noble house or palace, when thrown open by this means, presents a fine *coup d'œil* and a grand effect.

Let not the kitchen be too near the dining-room; the perfumes will be unpleasant; nor too far off, for then the meat in the winter season will get cold before it can be brought into the dining-room.

Do not place the library at the north, it will be too cold and cheerless, but place it at the east for the morning sun; this time of the day being best for study.

Take care not to have the wine-cellar, dairy, or larder on the south side of the house; it will be too hot: they should be placed on the north.

Always have a lobby or passage in small houses inside the front entrance-door, so as to prevent the door opening directly into the sitting-parlour, and exposing the inmates to the open air.

Avoid at all times placing the bed in the draft of a door or chimney.

Let the dressing-room have a fireplace in it, and a door into it from off the stairs, as well as from the bed-room, for the servant to enter to put on the fire in the winter season.

All bed-rooms without fireplaces are unhealthy. Take care to form the chimney-breasts with as ittle projection as possible, and not too large and heavy.

Too many corresponding doors in a hall is faulty in a house, as may be seen at Chiswick Villa.

Chimneys between windows in outer walls are ill placed, though that was their situation in the reign of Elizabeth, as observed in several of the houses in the High-street, at Topsham.

Pediments adopted for mere ornaments in any part of the interior of a house are inconsistent, because their original intention was to carry off the water which fell from the heavens.

DISSERTATION XXXIV.

THE SCIENCE OF OPTICS INDISPENSABLY NECESSARY TO BE KNOWN BY THE ARCHITECT, TO ENABLE HIM TO ASCERTAIN WHAT PORTION OF HIS DESIGN WILL APPEAR AND WHAT RECEDE, WHEN HIS EDIFICE IS ERECTED.

"The emotion of sublimity is doubtless first produced by means of the power of vision: whatever is lofty, vast, or profound, while it fills the eye, expands the imagination, and dilates the heart, becomes a sort of pleasure to the beholder."—BURKE.

This branch of natural philosophy treats of the mechanical properties of light and the phenomena of vision. The former are not much to our purpose, and have been a subject of speculation from the first dawnings of philosophy. Several of the earliest philosophers thought that objects became visible by means of something proceeding from the eye, while others maintained that vision was occasioned by particles continually flying off from the surfaces of bodies which met with others proceeding from the eye. Pythagoras is said to have ascribed the effect solely to the particles proceeding from external objects, and entering the pupil of the eye. It was not till about a thousand years after the time of Pythagoras that J. Baptista Porta fully satisfied himself and others of vision being performed entirely by the intromission of light into the eye, a doctrine now fully established; but it has often been a subject of inquiry, why we see objects in their true position when the image on the retina is inverted, but no satisfactory solution of the difficulty has ever been given: and we should be as likely to receive an answer if we were to ask, why we did not perceive every object bent because the image of it is depicted upon a concave surface. It is certain, that unless distinct images are painted on the retina, objects cannot be clearly perceived. If from too little light, remoteness, or any other cause a picture is indistinctly painted on the retina, an obscure or indistinct idea of the object is conveyed to the mind. The picture on the retina is therefore so far the cause of vision, that our ideas of visible objects vary as it varies, and when it is formed nothing is seen. Yet we may fairly conclude that the mind does not look upon the image on the retina, for in case of the gutta serena, a disorder which affects only the optic nerves, the pictures on the retina are as perfectly formed as in the best eyes, although the patient is afflicted with incurable blindness. It is the optic nerve, therefore, which conveys the impressions made on the retina to the brain, but how they are there communicated to the mind is screened from the view of man. It has been supposed that we acquire by experience the habit of seeing objects erect; but there are many striking facts to prove the contrary: persons who have been blind from infancy, and who have been suddenly restored to sight by a surgical operation, have not been led into the smallest mistake. In fact, no reason can be given why the mind should not perceive as accurately the position of bodies, when the rays reflected from the upper parts of those bodies fall upon the lower parts of the eye as if the contrary took place.

The advantages of having two eyes, even so far as we are acquainted with them, are not confined merely to improving the brightness of objects, and showing them in their true places. In each eye there is a spot where no vision takes place, and this spot, which is about the fortieth of an inch in diameter, lies exactly upon the insertion of the optic nerve, so that we cannot perceive the image of any object that falls upon it at the hinder part of the eye, provided the other eye be shut; but as the insensible parts of the two eyes are on the sides next each other, that part which is invisible to one eye is visible to the other, and therefore the whole is seen. To be satisfied of the existence

of such a spot, the following experiment may be resorted to. Let three pieces of paper be fastened upon the side of a room, about two feet asunder, and let the person place himself opposite to the middle paper, and beginning near to it, retire gradually backwards, all the while keeping one of his eyes shut, and the other turned obliquely towards that outside paper which is towards the covered eye, and he will find a situation (which is generally about five times the distance at which the papers are placed from one another) where the middle paper will entirely disappear, while the two outermost continue plainly visible, because the rays which come from the middle paper will fall upon that part of the retina where the optic nerve enters. Hence it is evident, that if the optic nerve had not been inserted on one side, the centre of our field of view would have been invisible.

The following is a summary of the laws of vision with regard to the figure of visible objects. First, if the centre of the eye be exactly in the direction of a right line, the line will appear only as a point. Second, if the eye be placed in the direction of a surface, it will appear only a line. Third, if a body be opposed directly towards the eye, so that only one plane of the surface can radiate on it, the body will appear as a surface. Fourth, a remote semicircular arch viewed by an eye in the same plane with it, will appear as a right line. Fifth, semicircular arches in a bridge viewed obliquely, will appear, through the conjunction with the introdoses, like Gothic arches. Sixth, a sphere viewed at a distance appears a circle. Seventh, angular figures at a distance appear round. Eighth, if the eye look obliquely on the centre of a regular plane or a circle, the true figure will not be seen, the former assuming a trapezium, the circle will appear an ellipsis.

When we look from one end towards the other of a long and straight row of houses on each side of a street, they appear gradually to diminish as they are further removed from the eye, though upon a nearer inspection they are all found to be of an equal size. Again, if we take a view of any single building of large dimensions, we perceive each side converging to a point, and assuming different forms from that of the original. Now it will be evident from the observations we have just made respecting the visual angle that this must be the case, for the angle under which similar objects are seen, and consequently the evidence which sight affords us of their magnitude, is in an inverse proportion to the distance of those objects. The apparent exceptions to this rule apply to objects where the evidence of sight is corrected by the judgment. When objects are near we do not judge of their magnitude according to their visual angle.* Though a man six feet high is seen at the distance of six feet under the very same angle as a dwarf only two feet high at the distance of two feet, still the dwarf does not appear as large as the man, because we are instantly able to make the requisite allowance for the difference of distance.

But when the distance is considerable, and we have no opportunity of comparing one object with another, we soon perceive that the rule just laid down has its foundation in nature. When Denon first drew near the gigantic pyramids of Gizeh, he was not particularly struck with their magnitude, principally because there were no objects in the vicinity by which a comparison could be made; but this impression was speedily effaced when he had observed a hundred people, who had preceded him, assembled at the base of one of them. The deception instantly vanished, a comparison was formed, and the stupendous pile assumed all its appropriate majesty.

The eye can only see a very small part of an object distinctly at once, for the lateral parts of an

* In the appearance of domes after being executed, there will be a great difference from that of the elevation. The modern Italian domes, however, have greatly the advantage in altitude of the ancient Roman, from their being mounted on loftier substructures; (such as that of the circular cell or tambour;) though we must still remember, that when that altitude exceeds a certain proportional measure, the effect of expansion is in the same degree reduced. It is from the different relative proportions between height and width that the cupola of St. Peter's appears so much less, and that of St. Paul's so much more than the ordinary beholder imagines.—(Author.)

object are not represented distinctly in the eye, and therefore the eye is obliged to turn itself successively to the several parts of the object it wants to view, that they may fall on or near the axis of the eye, where alone distinct vision is performed.* All geometrical elevations are deceiving without a perspective drawing, for we never see them so represented in reality. In an elevation the eye is supposed to be everywhere on the drawing at the same instant of time, whereas buildings when erected are seen from certain points, but only at one fixed point at a time. In elevations we see the relative proportion of one part to another, but we do not so see the parts in perspective; for here the soffits of all cornices are exposed to the eye, by which the cornices become enlarged; whereas the columns actually become contracted, hence the impossibility of deciding on the appearance of an elevation when executed without either a perspective drawing or a model;† and even if some parts are made too large for the others, they will then reduce the extent of the edifice. Other parts again, of an elevation which make up the pictures, such as roofs, stacks of chimneys, turrets, domes, &c.; may all recede from the eye when the edifice is erected or become distortions; hence the necessity of certain points of view being ascertained, and visual lines drawn from the design to the eye, thus forming so many sectional pictures, and clearly ascertaining the appearance the edifice will assume when executed.

DISSERTATION XXXV.

ON DESIGNING AND DRAWING THE ELEVATIONS FOR A COUNTRY HOUSE.

"Blend simplicity with ornament, extent with proportion, and combination with unity."—MICHAEL ANGELO.

The architect having thoroughly understood the conveniences which are required in a house, and devised his ground-plan, now proceeds with the corresponding elevations: here he is to remember, that the exterior part of a building is intended to please and strike the eye of others as well as that of the owner, and that whatever may hereafter appear to be a fault to a judicious observer, will reflect on the architect. Let him further consider that it will be of no consequence that he is able to defend what he has done by precedent, for whatever appears amiss to others, he may not be at hand to give his reasons to those who make the objections. Besides, the business of the architect is not to be able to answer such objections, but to prevent them; for this reason let him set out upon right principles, and by reconsidering his elevations, strike out whatever does not please his eye and judgment: let him not spare the labour of alteration where it is important, for in so doing it is but pursuing a course of study, and aiming at further perfection. Alterations are easily made on paper, but afterwards with difficulty and expense; it is, therefore, only by considering the parts well together as a whole, that he can succeed in these particulars, or, where rules are wanting, distinguish what is best.

We have already laid it down as a rule, that the situation and scenery are to point out or dictate,

* An Englishman when he first views an Italian landscape, makes the most egregious mistakes in estimating the distances of places and objects by the eye. He has no conception of the clearness of the air in that delightful climate, by which he is enabled to perceive objects at the distance of twenty miles with so much distinctness, that he supposes himself to be within half an hour's walk of them. Italian painters, true to the characteristics of their country, have made their most distant mountains well defined at their summits, and all other objects proportionately distinct, and we are apt to think they have deviated from nature, because the scenery of our own country is never clothed with such fascinating splendour. —(A.)

† How wise was the proceeding of the ancient architects in designing and making their mouldings of a size proportioned to the distance from which they were to be viewed! The smaller a building, the more delicate in proportion may be its members; whereas if a building be very lofty, besides the increased dimensions, many parts require to be retrenched altogether, so that what remains may be more distinct; for the eye hardly reaches in pure vision through a mass of air, charged, perhaps, with vapour to a great height, without such a device.—(B.)

and guide us in the choice of the style and composition of the masses; nevertheless so fixed are the notions of some of our architects in their admiration of classical architecture, that this style has too often been adopted where other styles would have been more appropriate, such contending that the Grecian and Roman architecture is not only the most sublime and grand, but that those styles have exhausted every form of grace. Now we are not going to contest the grandeur of the lofty, bold, and finely-proportioned columns of the Greeks and Romans, the majesty of their pediments, the sublimity of their peristyles, and the inimitable and living beauty of their statuary and storied friezes; and if we could but gaze on the fair structures of Athens and the gigantic piles of Tadmor, I have no doubt that we should feel and confess that nothing in that character, and for those climates, ever could or ever will surpass them while the world stands.* Here then let the architect remember, that whatever component parts are grand or beautiful in architecture, whatever is noble and characteristic, or whatever is most surprising or effective in situation, is to be, by the magic power of genius, brought into view;† combining it in the best manner, and adapted to excite correspondent emotions. Probably consistent with that variety which characterizes genius, is another essential quality required in an edifice—unity of design. In every building the architect should have one leading design; every part should have some relation to the next, and all should unite to produce one regular whole,

"Denique sit quidvis simplex duntaxat et unum.

Of beauty in buildings, the inferiority of the moderns, compared in this respect with the ancient masters, is great; surely the use of decoration without correctness and effect of outline is an evident blemish. Now that for which the ancient masters are so eminently superior to the modern architects, is that elegance of outline: almost every one of the old buildings, however exceptionable in part of detail, has a grand, a beautiful, and a picturesque outline. Numerous buildings, both in England and abroad, whether viewed in the distance or near, have an almost universally imposing and agreeable appearance: their considerable augustness shows that the architect designed the elegant outward shell of the building at once, so as to contain only all the internal requisites, without any unsightly additions, or from any necessity of enlargement of the pile afterwards; thus at first all became necessary to the picturesque massing and grouping together of those buildings which we now see, and was never lost sight of during the progress of the design.‡

When the front division is made, or formed into stories by string-courses, the young architect should

* The faults of classic architecture when applied to domestic are monotony of structure, heaviness of mass, and want of adaptability to the needs of varying climates. The former defects are felt where a number of buildings in the pure Grecian style are brought together; the latter cannot be remedied without gloom within, or violation of unity without. It is true, that the original defect of classic architecture has been so far overcome by the genius of Anthemius, the old Byzantine architect, Michael Angelo Buonarotti, the Italian, and since by the English Sir Christopher Wren, as to admit of those magnificent domes of Santa Sophia at Constantinople, St. Peter's at Rome, and St. Paul's in London; but this is a departure from the strict classic model, and an engrafting upon it of an Eastern idea.—(Howitt's Visit to Remarkable Places, p. 448.)

† Genius, which is the power of invention, ransacks every region of nature, science, and art for materials upon which she may exercise her powers. The beauties of poetry cannot be completely relished without a habit of attending to those forms of nature from which the poet borrows his conceptions, and observing with accuracy the distinct features and peculiar characters of objects in the vegetable and animal world; nor can the excellences of a classic building be truly estimated but by those who have had a classic education.—(Dr. Aikin's Essay on the Application of Natural History to Poetry.)

‡ What is the mode of practice now pursued by the untravelled architect, or such as have visited those noble monuments merely to copy their component parts, without studying the principles of the original? why, in most instances, very different. A copy of the exterior of some old debased building is adopted on a small scale and executed in bad materials; this pretended economical crust, in nine cases out of ten, is discovered eventually to be neither high enough, long enough, nor broad enough to contain properly all the accommodations and internal details of the building; hence are added the external incumbrances of lantern-lights, ugly domes, heavy and frightful chimneys, and other deforming excrescences, for which modern buildings are so noted.

If a building at a distance appear monstrous, it is in vain that it have delicate enrichments, and that it be composed of rich materials; it cannot please either the vulgar or the tasteful, nor can the scientific give it commendation. The qualities of form

then consider the apertures or openings in each division; here are to be windows as well as doors in the front, and as there are other apparent and external parts to be arranged and united, those now come under consideration, which must be carefully proportioned; first, to the general aspect of the building, next, to the stories, and, lastly, to one another. The proportions of windows, string-courses, and attic-cornices to the stories, will serve as a rule to judge whether each is properly constructed for the whole, and also whether those divisions have been well made. It is a test to which the young architect must bring his own design, and it will either confirm his approbation, or show him that he has satisfied himself too easily in that division.*

The young architect we now suppose has drawn out his design, so far as the external part of the edifice is concerned, and that he is enabled to proceed; but we must not quit this important article without giving him a needful lesson, namely, that he entertain a modest sense of his own abilities, (yet a sufficient and well-grounded confidence,) and also support his opinions if controverted in any part with the strongest reasons but in the gentlest words. The proprietor of the intended edifice will claim a right to please his own fancy in laying out his money, and it is right he should be indulged if he so chooses, even at the expense of propriety in some of the minor parts, though not without being informed of it by his architect. If he desires to have any alteration in the design, let the architect lay before him the reasons he has in view, and the impropriety and the consequence of what the proprietor wishes to introduce; probably he will be won over by this to what is right; if not, the architect has done his duty in respect to him, and to the intended building; but he is to go no further: let him at least drop it for the time, and leave all to the future consideration of his principal: the proprietor will, perhaps, consult some other person upon the point, then it will be time enough to name it again before carrying this particular point into execution; he will then receive his final answer. Let him not be determined upon it because he is in the right, for the candid judge, when he sees a building executed in good proportion, will not believe that he who was capable of going so far right could fall into a gross fault; and therefore, though the error be obvious, he will charge it where it ought to attach, upon the arbitrary will of the proprietor, and not upon any defect in the judgment of the person who designed the edifice.

Finally, from the previous mode of designing flow all the beauties of architecture; hence the modus may be shifted, extended, varied, or methodically arranged into any form of a house. The proportions may afterwards be embellished, and beautified with enrichments discreetly disposed, more or less, just as the taste and genius of the architect may direct, all arising from that one unerring rule, harmonious combination, and true proportion. Just as may be said of the symmetry of a fine human figure, where all the proportions of the members are found to be exact. For

> "'Tis not an eye or nose, we beauty call,
> But the full force, and joint result of all."

and outline stand apart from all the petty quarrelling about orders and styles, by which unskilful professors have pestered and lowered a once noble art.—(A.)

The most picturesque edifices of all countries have a wonderful similarity in their outline. The most perfect architectural composition is that which forms one immense pyramid of decoration, consisting of many minor subservient pyramidical masses. The pyramid is nature's own form: her mountains, the grandest of earthly masses, diminish to heaven: constructional, science requires that a building to endure should end in a pointed summit: a mere heap of sand will by its own gravity assume a pyramidical form, and so endure for thousands of years, and long outlive a wall of granite reared perpendicularly.—(B.)

* The inner construction of a house, some will tell us, is to be considered equally at the same time with the outer appearance: that in some particulars they depend upon one another, and that in these instances the disposition of the floors gives them a sufficient guide externally, this is in part true; but that any parts which are seen within the intercolumniations has any relation to its construction, or can be admitted as an excuse, must not be allowed. The dispositions of the floors are not seen on the outside, nor are the common marks of them visible, except sometimes by string-courses; he therefore errs who supposes this may be allowed as an apology.—(Author.)

In sculpture the fine features, the well-turned arm alone did not compose the Venus de Medici; it was the joint concurrence of the separate parts, whose just proportions finished the inimitable piece.

" The ancient Grecian deities derive
From human passions all their boasted fame,
From strength (vain power) that hero
..... Mars was named;
All beauty, Venus deity proclaim'd:
Yet strength and beauty fade and die away,
While just proportion never can decay."

DESCRIPTION OF PLINY'S WINTER VILLA AT LAURENTINUM, WRITTEN BY HIMSELF TO HIS FRIEND GALLUS.*

" You wonder why I am so very fond of my Laurentinum, or (if you had rather call it so) my Laurens; but your wonder will cease when I acquaint you with the beauty of the villa, the advantages of its situation, and the extensive prospect of the sea-coast. It is but seventeen miles distant from Rome, so that having finished my affairs in town, I can pass my evenings here without breaking in upon the business of the day. There are two different roads to it; if you go by that of Laurentum, you must turn off at the fourteenth milestone, if by Ostia at the eleventh: both of them are in some parts sandy, which makes it something heavy and tedious if you travel in a coach, but easy and pleasant to those who ride. The landscape on all sides is extremely diversified, the prospect in some places being confined by woods, in others extending over large and beautiful meadows, where numberless flocks of sheep and herds of cattle, which the severity of the winter has driven from the mountains, fatten in the vernal warmth of this rich pasturage. My villa is large enough to afford conveniencies without being extensive. The porch before it is plain but not mean, through which you enter into a portico in the form of the letter Ω, which includes a small but agreeable area. This affords a very commodious retreat in bad weather, not only as it is enclosed with windows, but particularly as it is sheltered by an extraordinary projection of the roof. From the middle of this portico you pass into an inward court, extremely pleasant, and from thence into a handsome hall which runs out towards the sea, so that when there is a south-west wind it is gently washed with the waves, which spend themselves at the foot of it. On every side of this hall there are either folding-doors or windows equally large, by which means you have a view from the front and the two sides, as it were, of three different seas: from the back part you see the middle court, the portico, and the area; and by another view you look through the portico into the porch, from whence the prospect is terminated by the woods and mountains which are seen at a distance. On the left hand of this hall, something further from the sea, lies a large drawing-room, and beyond that a second of a smaller size, which has one window to the rising and another to the setting sun; this has likewise a prospect of the sea, but being at a greater distance is less incommoded by it. The angle which the projection of the hall forms with the drawing-room, retains and increases the warmth of the sun, and hither my family retreat in winter to perform their exercises: it is sheltered from all winds except those which are generally attended with clouds, so that nothing can render this place useless, but what at the same time destroys the fair weather. Contiguous to this is a room forming the segment of a circle, the windows of which are so placed as to receive the sun the whole day: in the walls are contrived a sort of cases, which contain a collection of such authors whose works can never be read too often. From hence you pass into a bedchamber through a passage, which being boarded, and suspended as it were over a stove which runs underneath, tempers the heat which it receives, and conveys to all parts of this room. The remainder of the side of the house is appropriated to the use of my slaves and freedmen; but, however most of the apartments in it are neat enough to entertain any of my friends who are inclined to be my guests. In the opposite wing is a room ornamented in a very elegant taste; next to which lies another room, which, though large for a parlour, makes but a moderate dining-room; it is exceedingly warmed and enlightened, not only to the direct rays of the sun, but by their reflection from the sea. Beyond this is a bed-chamber, together with its antechamber; the height of which renders it cool in summer, as its being sheltered on all sides from the winds makes it warm in winter. To this apartment another of the same sort is joined by one common wall; from thence you enter into the grand and spacious cooling-room belonging to the baths, from the opposite walls of which two round basins project, large enough to swim in. Contiguous to this is the perfuming-room, then the sweating-room, and beyond that the furnace which conveys the heat to the baths: adjoining, are two other little bathing-rooms, which are fitted up in an elegant rather than costly manner: annexed to this is a warm bath of extraordinary workmanship, wherein one may swim, and have a prospect at the same time of the sea. Not far from hence stands the tennis-court, which lies open to the warmth of the afternoon sun. From thence you ascend a sort of turret, which contains two entire apartments below, as there are the same number above, besides a dining-room, which commands a very extensive prospect of the sea and coast, together with the beautiful villas that stand interspersed upon it. At the other end is a second turret, containing a room which faces the rising and setting sun. Behind this is a large room for a repository, near to which is a gallery of curiosities, and underneath a spacious dining-room, where the roaring of the sea, even in a storm, is heard but faintly; it looks upon the garden, and the gestatio† which surrounds the garden. The gestatio is encompassed with a box-tree hedge, and where that is decayed, with rosemary; for the box in those

* We have referred the reader, at page 65 of this work, for a description of Pliny's summer villa at Tuscany, in his Epist. vi. lib. 5, which was his principal seat, lying about one hundred and fifty miles from Rome, where he usually resided in the summer season. The reader will observe that Pliny considers this summer villa in a very different manner from that of Laurentinum, his winter villa, both with respect to the situation and to the internal arrangement of the house itself. —(A.)

† A piece of ground set apart for the purpose of exercise, either on horseback or in other vehicles; it was generally contiguous to their gardens, and laid out in the form of a circus.—(G.)

parts which are sheltered by the buildings preserves its verdure perfectly well; but where by an open situation it lies exposed to the dashing of the sea-water, though at a great distance, it entirely withers. Between the garden and this gestatio runs a shady walk of vines, which is so soft that you may walk barefoot upon it without any injury. The garden is chiefly planted with fig- and mulberry-trees, to which this soil is as favourable as it is averse to all others. In this place is a banqueting-room, which though it stands remote from the sea enjoys, however, a prospect nothing inferior to that view; two apartments run round the back part of it, whose windows look upon the entrance of the villa, and into a very pleasant kitchen-garden. From hence an inclosed portico extends itself, which by its grandeur you might take for a public one. It has a range of windows on each side, but on that which looks towards the sea they are double the number of those next the garden. When the weather is fine and serene these are all thrown open, but if it blows, those on the side the wind sets are shut, while the others remain unclosed without any inconvenience. Before this portico lies a terrace, perfumed with violets, and warmed by the reflection of the sun from the portico, which as it retains the rays, so it keeps off the north-east wind; and it is as warm on this side as it is cool on the opposite; in the same manner it is a defence against the south-west, and thus, in short, by means of its several sides, breaks the force of the winds from what point soever they blow. These are some of the winter advantages of this agreeable situation, which however are still more considerable in the summer, for at that season it throws a shade upon the terrace during all the forenoon, as it defends the gestatio, and that part of the garden which lies contiguous to it, from the afternoon sun, and casts a greater or less shade as the day either increases or decreases; but the portico itself is then coolest when the sun is most scorching, that is, when its rays fall directly upon the roof. To these advantages I must not forget to add, that by setting open the windows the western breezes have a free draft, and by that means the inclosed air is prevented from stagnating. On the upper end of the terrace and portico stands a detached building in the garden, which I call my favourite; and, in truth, I am extremely fond of it, as I erected it myself. It contains a very warm winter-room, one side of which looks upon the terrace, the other has a view of the sea, and both lie exposed to the sun. Through the folding-doors you see the opposite chamber, and from the window is a prospect of the inclosed portico. On that side next the sea, and opposite to the middle wall, stands a little elegant retired closet, which by means of glass-doors and a curtain, is either laid into the adjoining room or separated from it. It contains a couch and two chairs: as you lie upon this couch, from the feet, you have a prospect of the sea; if you look behind you see the neighbouring villas, and from the head you have a view of the woods; these three views may be seen either distinctly from so many different windows in the room, or blended together in one confused prospect. Adjoining to this is a bed-chamber, which neither the voice of the servants, the murmur of the sea, nor even the roaring of the tempest can reach, not lightning nor the day itself can penetrate it, unless you open the windows. This profound tranquillity is occasioned by a passage which divides the wall of this chamber from that of the garden, and thus by means of that void intervening space, every noise is drowned. Annexed to this is a small stove-room, which, by opening a little window, warms the bed-chamber to the degree of heat required. Beyond this lies a chamber and antechamber, which enjoy the sun, though obliquely indeed, from the time it rises till the afternoon. When I retire to this garden-apartment, I fancy myself a hundred miles from my own house, and take particular pleasure in it at the feast of the Saturnalia, when, by the licence of that season of joy, every other part of my villa resounds with the mirth of my domestics: thus I neither interrupt their diversions nor they my studies. Among the pleasures and conveniences of this situation there is one disadvantage, and that is the want of a running stream; but this defect is in a great measure supplied by wells, or rather I should call them springs, for they rise very near the surface; and, indeed, the quality of this coast is pretty remarkable, for in what part soever you dig, you meet upon the first turning up of the ground with a spring of pure water, not in the least salt though so near the sea. The neighbouring forests afford an abundant supply of fuel; as every other convenience of life may be had from Ostia: to a moderate man, indeed, even the next village (between which and my house there is only one villa) would furnish all common necessaries. In that little place there are no less than three public baths, which is a great convenience if it happens that my friends come in unexpectedly, or make too short a stay to allow time for preparing my own. The whole coast is beautifully diversified by the joining or detached villas that are spread upon it, which whether you view them from the sea or the shore, have a much more agreeable effect than if it were crowded with towns. It is sometimes, after a long calm, good travelling upon the coast, though, in general, by the storms driving the waves upon it it is rough and uneven. I cannot boast that our sea produces any very extraordinary fish; however, it supplies us with exceedingly fine soles and prawns; but as to provisions of other kinds, my villa pretends to excel even inland countries, particularly in milk; for thither the cattle come from the meadows in great numbers in pursuit of shade and water. Tell me, now, have I not just cause to bestow my time and my affection upon this delightful retreat? Surely you are unreasonably attached to the pleasures of the town, if you have no inclination to take a view of it, as I much wish you had, that with so many charms with which my favourite villa abounds, it might have the very considerable addition of your presence to recommend it. Farewell."*

DISSERTATION XXXVI.

GENERAL REMARKS ON THE EXTERNAL PROPORTIONS OF HOUSES.

"The eye should nowhere be offended: the judgment everywhere satisfied."—*Essay on Design.*

When any part of a rural residence, either in mass or ornament, is too large or too small for the others, it is then out of proportion. The propriety of the different parts and proportion of the

* Book ii. Epist. 17.

members to one another in any building, is the perfection of beauty. When these correspond the edifice is said to be harmonious, but when they do not agree there must be a discordance. In all plain houses erected without any view to ornament, proportion in the masses is all that is to be considered, except the openings of the doors and windows; these must be properly regulated in all edifices, otherwise they may be made too wide or too narrow, too high or too low. When any part of a building, as we have observed, is evidently too large or too small for another part, we immediately say such edifice is ill proportioned. Those proportions, however, which are the most essential, cannot be very accurately stated, as there are no proportions of this kind to be depended on that have been laid down by the ancients, and no modern architect has hitherto correctly determined on any: there is no fear, however, of a judicious architect running into extremes; for a good eye will easily determine between what is a small deviation and what is excessively out of proportion: unfortunately, the architect cannot, like the painter, alter what is done amiss; there it must remain to his disgrace. The general conclusion we have formed upon experience is propriety, and the fitness, or rather appropriateness, of such and such parts for the purpose required; but, as we have said, there is no fear of running into extremes on this head, for every architect of taste should know where to fix his bounds or limits.

Buildings intended for different purposes require different proportions; some require a heavy appearance, others, on the contrary, a light one; some gloomy, others cheerful; some demand their chief lines to be horizontal, others again require the vertical position. Materials likewise and their colour will contribute a great deal to effect, some being of a sombre tone, others again light and varied. Roofs also require to be of different forms, and covered with those materials which accord to the true character of the building. On the temple, the plain ridge-span is the most proper, where it becomes a great ornament by means of its two triangular and moulded pediments. On the castle pile the sided-roof would be highly improper, for here the top of the building forms a sort of garrison for defence, in accordance with the feudal times, which required them to be flat.* It is not in street buildings that any very accurate extended proportions have always been regarded; this is to be looked for solely in detached edifices, where they are seen from various points of view. I have observed, that no absolute external proportions have ever yet been laid down for buildings; I mean the masses or plain parts of architecture, not the decorative, such as the five orders: here the whole genius of the art has been displayed, and in which the proportions are settled with a certainty so absolute as to forbid almost any attempt at innovation; yet I believe those proportions at first were not the result of study, but fixed to them afterwards by the moderns, else why so many various proportions of the same order?

The appropriateness of the columns of any order, or the proportions of the columns—as it seems from analogy reasonable to conclude—consist in their appearing adequate to the support of the entablature, or of the superincumbent weight which is imposed upon them. That is really the case, and that, from the columns of the orders being expressive to us of such fitness, and the proportions so constructed of these different orders causes them to appear beautiful, seems probable; which will appear more evident from the following considerations: first, the appearance of these proportions in the columns seems very naturally to lead us to this conclusion. In all orders the propriety of the parts to the

* Luscombe House, near Dawlish, in Devonshire, is in the castellated style. Mr. Hoare, the banker, of Fleet-street, London, who is its possessor, observed to me, that Mr. Nash, the architect of the building, expressed great satisfaction in having concealed the roof by the battlements, thereby giving to the house its true character. Yes, I replied, Mr. Nash is a talented architect, but he has placed his building where no person acquainted with the nature of a castellated edifice would have placed it; he has erected it in a valley, where it is overlooked by high ground at the back. A house in this style should have been built on a lofty hill. In the present situation the Tudor style would have been the most proper.—(Author.)

support of the peculiar weight or appearance of weight in the entablature is apparent to every person, and constitutes an undoubted part of the pleasure we receive from them; were it more it would be heavy, and to be less absurd.*

The proportions of the orders, it is to be remembered, are distinct subjects of beauty, from the ornaments with which they are embellished, from the magnificence with which they are executed, from the purposes of elegance they are intended to serve, or the scene of grandeur they are destined to adorn. It is in such scenes, however, and with such additions that we are accustomed to observe them; and while we feel the effect of all these accidental associations, we are seldom willing to examine what are the causes of the complex emotion we feel, and readily attribute to the nature of the architecture itself the whole pleasure which we enjoy. But besides these there are other associations we have with the forms, that still more powerfully serve to command our admiration, for they are the Grecian and Roman orders; they derive their origin from those times, and were the ornaments of those countries which are most hallowed in our imaginations; and it is difficult for us to see them, even in their modern copies, without feeling them operate upon our minds as relics of those polished nations where they first arose, and of that greater people, the Romans, by whom they were afterwards borrowed and rendered more sumptuous. While this species of architecture is attended with so many pleasing associations, it is difficult even for a man of reflection to distinguish between the different sources of this emotion; and in the moments in which this delight is felt, whether it is the proportion or the beauty of the parts is an inquiry; but I believe it will be found that the real beauty of proportion is, in fact, no greater than that which we feel in many cases where we perceive means properly adapted to their end, and that the admiration many feel in viewing the orders of antiquity, is necessarily to be ascribed to other causes as well as this. The common people undoubtedly feel a very inferior emotion of beauty from such objects to that which is felt by men of liberal education, because they never read of those associations in their minds. The man of letters feels also a weaker emotion than that which is felt by the architect, because he has none of the associations which belong to the art, and never considers them in relation to the genius, skill, or invention which they display.

DISSERTATION XXXVII.

ON THE APERTURES IN AN ELEVATION.

"Every aperture has a tendency to weaken."—DURAND'S *Parallel.*

The subject of walls we have already laid down in a separate section of this work, among the essential parts of a building, we need not therefore add anything here on this head. Reason will

* If a little weight is seen on large columns and a great weight on slender columns, we say there is no consistency, no fitness of parts to one another; consequently the whole is out of proportion. In the Doric, where the entablature is heavier than the others, the column is proportionably stronger. In the Corinthian, where the entablature is lightest, the column is slighter; and in the Ionic, which is between the extremes, the form of the column is in the same manner proportioned to the reciprocal weight of the entablature. Whenever we speak or think of the proportions of these different orders, the circumstance of both weight and support enters into our consideration: the term proportion in its general acceptation, implies the term. Heaviness and lightness are the terms most generally used to express a deviation on either side. When it is said that a column or an entablature is disproportioned, it is the same thing as saying that this part is unfitted to the rest, and inadequate to the purpose to which it is applied. When it is said, on the other hand, that the column and the entablature are properly adjusted, so that the column is just sufficient for the support of the entablature, every person of judgment immediately concludes that those parts are perfectly proportioned; and though this proportion may not be noticed by the ignorant, yet it is that with which all men of taste are so much enraptured.—(Alison on Taste.)

inform the most fastidious, that the strength of the walls is a material point in giving strength to the building; but there are yet a few plain and obvious rules to be given in this place, when we are concluding what we have to say on the outward or external parts of a house, and which must always be remembered; there we refer to one indeed so obvious, that every person would suppose they need not be again reminded of it, were it not that we see it so often violated, and find it so common on the tongues of some architects, that it is strange it should ever be out of their memories, particularly when they are laying down a design on paper.

The first of these is, that in erecting the walls by a scale he places solid over solid, and void over void; that is, the piers are to continue entire from the bottom to the top of the house, and the windows to stand perpendicularly over each other. Common reason shows the propriety of this rule, and it is therefore a common maxim; yet, I say, we frequently see it violated. This rule observed, the next to be considered is that the windows be not too large nor too small, nor more in number than is needful, as it has been an established precept, from the days of Vitruvius to the present, that all openings in walls are weakenings;* and if so considered when houses were only carried up one story high, how much more applicable is it where houses are now built with several stories!

If a proper regard be paid to their construction, and, as already observed, of proportioning the parts to the whole, then the object as to the size of these openings will be determined by that rule. The proportion or size of light to different rooms will be treated of in the article on windows; but the number of these openings in an elevation or front of a house still remains a point here to be decided,—whether they should be of an equal number in the horizontal line and width of the house or of an unequal number; but it is clear that this must depend on circumstances as to the magnitude and form of the edifice; though at all times, let it be observed, it is desirable in a large house to have windows up the centre or middle of the front. This, custom from time to time has certainly varied, but judgment has been less employed here than the taste of the architect.†

At an early period in Britain the houses were like dungeons and had little light, though afterwards they were made more cheerful, and at last increased to excess, till they became comparatively like a lantern, all windows.‡ The bay-windows were then extended, and appeared like so many lanterns, and the piers between them were so slender that a person stood astonished how the fabric supported itself. From this error of too many windows, which arose from a desire of abundance of light, we afterwards fell again into the other extreme, of making the windows too few and too nar-

* In determining the number and size of openings for windows, regard must be paid to the destination, local position, and elevation of the building, as well as the cubature and height of the story in the rooms to be lighted, and the thickness of the walls. With respect to private houses, though considerable latitude may be allowed in the determination of those, still there are limits which cannot be disregarded without losing the beauty of proportion, and the convenience of a due quantity of light. In general, the piers should not be of less breadth than the apertures, nor more than twice such breadth. The windows in all the stories of the same aspect should be of the same breadth, unless a variation be required from this rule for the convenience of particular rooms in the ground-story. The laws of symmetry and strength alike require them to be exactly one above another; this practice, so strangely neglected by the moderns, was duly attended to by the ancients. The apertures for windows should spread wider inwards on each side, by which means the quantity of light admitted will be nearly as much as if they were externally of the same size as the increased internal dimensions. —(Author.)

† The number of windows on each side of the entrance-door in a uniform piece of architecture should be equal, and an odd number of windows where there is situated a noble apartment on one side of the entrance. It is better than even numbers, as it avoids the necessity of having a pier opposite the middle of the floor.—(B.)

‡ During the feudal times, when the baronial castles were built, which were constructed of stone, they had very small windows, and those faced the court-yard, none looking outwards except the loop-holes. During the Tudor period, when the castle became no longer necessary as a place of defence, the windows became considerably enlarged, being divided by mullions, many of which, particularly in the great towers, were formed of wood.—(A.)

row.* In this our architects followed the practice of the Lombards, though afterwards too closely that of the Italians, not considering the difference of our climate. All imitation should be guided by the rules of sound judgment; it is by this persons of genius follow the best examples, otherwise they would be no better than mimics, a petty kind of imitators. That which may be proper, as I have so often observed, in Italy, would be very improper in England, and the above practice is an instance of it. It is true, that our windows were too numerous and too large before, because they weakened the fabric that was built of brick, though it did not those that were of wood: but it was possible to err on the opposite side, and the improver did so; not that he failed to avoid that error and give the edifice more strength, but he made a great mistake by shutting out so much light. In Italy it may be proper to keep out the sun in a greater degree than here, because in that country the air is clearer, not being so humid, and with fewer clouds; the natural light is therefore much greater. The English air is often thick from the condensed vapours in the atmosphere, and sunshine here is less constant. This should have been considered with the improvement, for the distribution of light is a thing very essential in a building, though some of our young architects never take it into their consideration, but act without any rule whatever in this respect.†

Moderation is the mode of pleasing generally, and that they had not found; we are now however in general improved in this part, but there are yet some who follow the old method introduced by the first improver too strictly. Respect being had to the number and size of windows in houses of ordinary magnitude, we are now to caution the architect, that when he is about to build on a large scale, he is to consider in his first view the great strength of the building, as well as increasing his windows, not only in size but in number. A great edifice should have all its parts equal, or some parts will look small in comparison with the others. The windows and doors are all to come within this description, and the increase in their numbers is also to be followed by that of an increase of their dimensions. This is the general rule, but here again comes in the former as the groundwork of all; what should be the proportion of them to the size of the building? what is the quantity of light required for each room? This is exceedingly necessary to be known, and may be found under the article 'Windows' in the succeeding section.

In concluding this article, we must again caution the young architect never to place his windows too near the corners or angles of the house, nor to make any door-opening there. This will probably thrust out the wall, or at least weaken that part upon the strength of which the firmness of the whole house depends.

* In the reign of James I. the windows became contracted, though the bay- or conversational-window was still adopted. —(B.)

† In houses of the common size for families of moderate income, the old practice was to have four great windows, and a slip or side light on each side in the Venetian form, parted by brick-work; the door was in the middle of the front with a small window over. In reforming this, the architects afterwards adopted three separate windows, and this was more consistent; but at the same time the architect, forgetting the laws of proportion between the component parts and the whole mass, where he had reduced them to a moderate number and size, he made them too small, the rooms were dark; and the houses on the exterior, though they looked different indeed from those of the former period, yet were equally unpleasant. The first had resembled a lantern, the brick-work between serving as it were for the ribs to hold the glass together; the other resembled a prison, where the windows were only made to let light into the separate dungeons: the one was a house of glass, the other a mass of perforated brick.—(B.)

DISSERTATION XXXVIII.

ON THE VARIOUS DESCRIPTIONS AND PROPORTIONS OF WINDOWS.

"Two circumstances must necessarily give all southern continental towns a gloomy appearance: in the first place, the streets are generally narrow; and in the second, the windows are seldom glazed, but formed of trellis-work. These deformities, for such they are in our eyes, are the natural consequences of the climate, and prevailed in ancient as well as in modern Greece; even in Rome itself, new modelled and improved by Augustus, the streets were narrow, and remained so till the city was rebuilt by Nero after the conflagration."—Jac. *Annal.* xv. 43.

Having described the various kinds and patterns of doors, and the proper distribution of apertures consonant to the required strength of the building, with their number and places according to the proportion of the edifice, we are now naturally led to that of the windows. Those are a very important part in a dwelling-house both in respect to light, to their proportions and appearances. They are of various forms and characters, therefore, in order that they may be understood, we shall fully describe all the different kinds and forms as adapted to different dwelling-houses, and after this lay down a rule and calculation to enable the young architect how to find what light is at all times necessary for an apartment.

The Romans made their windows in height of an oblong form, which they regulated according to the height of the rooms; and where it would admit of it on the principal floor, they were made twice the height of the breadth; but twice and one-sixth may be allowed in certain cases, without any violence being observed in the true proportions. In bed-rooms, where the windows were kept higher from the floor and nearer the ceiling, here, instead of twice the breadth for the height in the second floor, they took the diagonal line of the window for the height, which is one and a half the breadth. This is what the builder expresses by the name of a diagonal window: the attic windows above the cornice, (this room being low,) the windows were made square. The first-floor windows generally consisted of twelve squares, the second of the same number but shorter, and the attics of nine, that is in middling-sized houses.*

The Venetians used large windows, in which they had two mullions, dividing the window into three, but unequal parts, as they made the centre sash three times the width of each side light.

* Sir Henry Shere, in his directions given to Lord Nottingham when building his mansion, (see page 138 of this work,) says, Let no light or openings be higher than three diameters, nor lower than one.

The windows in the houses of the ancients were so disposed as not only to admit light, but to ventilate the whole house, that it might not be unwholesome, and not receive more light than was necessary. They were placed high up, that the person might be sheltered from the wind, and receive the benefit of the latter without injury. They were to be large or small according to the *exposure* (there being then no glass in use among them) to the sun. Those of a southern aspect were to be low and small, because they would receive the light air, and be impervious to the heat of the solar rays; but in winter dwellings they were to be open to the sun. All windows, however, which were made for the purpose of receiving light were to be placed high. (Albert, i. p. 20.) It is certain that windows were very rare, and long galleries only lit up by long slips, and that the few elevated windows to be discovered were closed with curtains and trellis-work of bronze suspended upon hinges, to open and shut at pleasure. (See Ruins of Herculaneum.) The chambers of Pompeii had no windows, but were lighted by the door, or rather a light over the door, the same opening under a piazza. This was also the formation of Apollonius's chamber at Meda. (Dr. Gell.) In the time of St. Paul, the houses at Macedonia consisted of at least three stories, and we should infer that the windows here were but little elevated from the floor; being informed in Acts, xx. 9, that while he was preaching, a young man who sat in one of the windows, having fallen asleep, fell down from the third-loft and was taken up dead. "Now," says an eastern traveller, "this intimates that the upper chamber in which they were assembled was on the third-story. It appears that the young man had seated himself in the window, and being overpowered with sleep, fell out of the window into the court below. It will be recollected that there were no windows of glass, whence we may perceive that the window here mentioned was a lattice of joinery or a door, which on this occasion was set open on account of the heat from the many lights and the number of persons in the room. It should be observed, that the windows of such places in general reach nearly to the floor, and differ considerably from our windows, but correspond well to what our own word 'window' denotes in its original signification, (window, windore, wind-door,) a door for the admission of wind or air."

The centre contained a pair of twelve-light sashes, and each pair of side-lights that of four. This window, in reality, is nothing more than a common sash in the centre, and one-third of a sash between each mullion. The real Venetian window had a semicircular head in the middle, with semicircular and radial bars in the top; which window is most noble, ornamental, and cheerful, and admits of a peculiar proportion. Its application is best for that of a library, but may be applied to a withdrawing- or dining-room when on the ground-floor; but it is improper when applied to upper stories.

The Palladian window, so called, is of Roman origin, and is formed in the shape of the Roman letter ⍾, turned on its left side. It is divided by two mullions, like the Venetian, and is sometimes placed over the entrance-door in the story above; where the front consists of only two stories here it has a good effect.* It is also applicable to the wings of a dwelling-house, but it is more generally adopted in public buildings where the windows are required to be high above the persons within the room. Italian windows are formed by triplicate, or three windows together, parted by about nine-inch brickwork, the windows having circular heads. These are exceedingly picturesque in cottage villas, and may be adopted with happy effect in such buildings. The oriel- and bay-windows, adopted in England during the Lancastrian and Tudor periods, are only applicable to buildings of that class, whose windows were formed by casements.† Probably there has not been any improvement in building so decided as that which has now taken place in the way of windows, in point of cheerfulness, warmth, and cleanliness ;‡ the modern manner is infinitely better than the ancient, although the eye of an antiquary finds it difficult to acknowledge any mode to be so characteristic as the old-fashioned quarry.

French sashes, sometimes called French casements, are windows which open up the middle, and are hung on each side with hinges; on the ground- and first-floor they are generally divided by a transom-head at the height at which they open; the window opening up, the middle parts represent a crucifix. Those which have semicircular heads are the most handsome. In the bed-rooms, the windows not being so high as the others, a transom is not used. The above windows are very common in France even in the meanest cottage, but are more frequently seen in the châteaux. Glass being there much cheaper than in England, very large squares are generally used.§

The above are the general characters of all the sash-windows in use; but in determining the height of the frame, there may be an extreme height at which the sill may be raised from the floor, and the same excess downwards from the ceiling in that of the heads. The view from the windows within and without are both to be considered in the former, and the cornice of the room in that of the latter. It is a fault to have windows too high up from the floor in drawing-rooms, as

* A house with a window so situated may be seen on Hearn Hill, near Dulwich, built by the late Mr. Nash.

† A fine specimen of a bay-window of the period of King Henry VII. still remains at Exeter, near the Globe Inn; it was built by Thomas Elyot, Esq., collector of the customs for the port of Exeter and Dartmouth. Its back front towards the Globe Inn is the admiration of every beholder.—(See Rev. G. Oliver's Ecclesiastical Antiquities of Devon.)

‡ We mean sashes hung with weights and lines, which were introduced in the reign of Charles II.—(H.)

§ When the French sashes are made to open inwards, and which is the most proper direction, the patent lifting-bar, made by Mr. Smith, of Whitcomb Street, near the Haymarket, London, should be used, being made to prevent all water from entering the room between the bottom rail of the sash and the sill of the sash-frame.—(Author.)

Nothing can be more inconvenient, and therefore out of place, than pointed windows (ecclesiastical features) in ordinary or domestic sitting-rooms. In the first place, there can be no corresponding shutters to that of the heads, consequently no security above the springing of the arch; and in the next place, the curtain draperies must, of necessity, be so deep as to obscure all the glass above that level, and deprive the apartment of its due share of light, unless, indeed, the windows be out of all proportion in size or number. Palpable as this error surely is to the most cursory observer, some modern builders very unaccountably persist in introducing these ecclesiastical objects into their dwelling-houses.—(Author.) In the side-slips to sashes we frequently see a false application. These were introduced at first where squares of glass; were larger than are generally used, consequently expensive; such is the mistaken notion of their first origin.—(B.)

the purpose of looking out cannot be obtained while sitting. It would be much more pleasing here that the company as they sat in their places should see objects out of the window without rising, whether it be garden, lawn, ornamental plantations, or distant hills. These windows may be brought lower than the others without transgressing the laws of architectural science. In France it is no uncommon thing to bring the windows in drawing-rooms down on the skirting, which has a sunk face; the whole skirting rising about fifteen inches from the floor. Some are of opinion, that the greatest propriety would be to bring the window just so far down that the command of the prospect should be within reach of the eye when sitting, though no lower; but they have certainly a nobler appearance when they come down to the skirting, just forming a step out on the balcony. Bed-room windows should be tolerably high up to prevent persons from being seen from the outside of the house, and kept near the ceiling for better ventilation, which is here so much required.*

In constructing the size of openings for our windows, as we have already observed, the climate and situation of the house are to be particularly attended to, for a small aperture may admit light enough where the light is itself strong and not obscured by local obstructions; that is, if the light comes direct:† but supposing this to be the case with light in the summer it may not be so in the winter. In England, the architect who should calculate nicely his proportion of light for a bright day in summer, would shut up the inhabitants more than half the year in dungeons. The houses during the dark ages were as dark as the affections of the inhabitants; but when the light of reason began to shine into their minds, they then increased the light of their dwellings. Casements formed of lead-lights prevailed at one period of time; at another, sash-bars of immense thickness of wood were constructed, but which thickness at last gave way, being now retrenched in a very happy manner. This mode of forming windows at first continued from a want of some known rules as guides among the domestic architects of that day. It will therefore be our business now to enter upon a calculation of what light is actually necessary for an apartment, in conformity with the Italian or more modern window, according to the magnitude of each room, by which all rooms may be illuminated more or less, according to their appropriate use, and at the same time preserve an external regularity.

For example, let the magnitude of a room be given, multiply the length and breadth of the room together, and that product multiply by the height, and the square-root of that sum will be the area or superficial contents in feet and inches the height required. Suppose the room to be forty feet long, thirty feet broad, and sixteen feet high; then $40 \times 30 \times 16 = 19200$, which product is in feet the cubature sought, and the square-root of it, neglecting a small remainder, is one hundred and thirty-eight feet for the aggregate area of the apertures. One hundred and thirty-eight feet will make four windows of a handsome size and shape, adapted to the apartment in question; and if divided accordingly into four parts, thirty-four feet and a half will be the area of one of them. The area thus obtained when set out for a ground-floor, according to the customary rule, which allows rather more than two squares in height, each window may be about eight feet eight inches high by four feet broad.

* Sills of windows have been generally made from two feet six inches to three feet distant from the level of the floor, as at that height they formed a convenient parapet to lean upon; but the French fashion having been introduced of having the windows, at least in the principal drawing-rooms, down to the floor, window-sills are now, partly in imitation of it, made lower than formerly, and in ordinary dwellings are frequently not higher than two feet, and in the extreme not more than two feet six inches. The sills of all windows on the same floor should be on the same level.—(B.)

† For example, in a long gallery one window at the end will be more efficient than two windows of the same size placed at the side. Light is also absorbed by dark and porous objects in a room, but reflected by smooth ones, the same as heat.—(A.)

By the same rule the dimensions of the apertures of windows for rooms of any other cubature may be determined.*

Again, suppose a room whose magnitude is the arithmetical numbers of five, four, and three, and is twenty feet long, sixteen broad, and twelve feet high; the cube or product of its length, breadth, and height multiplied together, three thousand eight hundred and forty, the square-root of which sum is sixty-two feet; if the height of the story is twelve feet, as before mentioned, divide that sixty-two feet into three windows, each will then contain twenty feet eight inches of superficial light; and those will be found to be three feet two inches and a half broad, and six feet five inches high, which are windows of two diameters. Let us now suppose another room on the same floor, whose height is twelve feet as before, and its proportion that of the cube; the product of that cube is one thousand seven hundred and twenty-eight, and its root forty-one feet four inches nearly; divide that forty-one feet four inches into two parts for two windows, and each window will contain twenty feet eight inches of superficial light; those will therefore be two diameters in height, and the magnitude the same as the preceding room. For a further exemplification we will suppose another room upon the same floor twelve feet high, whose proportion shall be the arithmetical of three, two, and one, that is, its height being twelve feet, the breadth will be twenty-four and length thirty-six feet; the product of these numbers multiplied together will be ten thousand three hundred and sixty-eight, and its root one hundred and one feet eight inches nearly; divide this room into five windows, each window will then have twenty feet four inches superficial light, and the magnitude will be nearly equal to the others; and if the proportion be six, four, and three, (with a waggon-headed ceiling over the room,) the light will be the same.†

If you extend the rule to larger rooms, the same results will be preserved, even if their height be continued through two stories, if the upper windows be made square, and have two tiers of windows. For this, let us suppose a particular room, with two tiers of windows in height, to be fifty feet long, forty feet wide, and thirty feet high, the arithmetical proportion of five, four, and three; the product of those numbers multiplied together will be sixty thousand, the square-root of which sum is two hundred and forty-five superficial feet; divide that sum for the tier of windows into three parts, or take one-third of it, and that makes the attic or square window eight feet eight inches superficial light; divide this into five windows, and they are four feet and a half inches square, and the five lower windows, consisting of one hundred and sixty-three feet four inches superficial light, being what remains out of the two hundred and forty-five feet, the root; each of these windows is four feet and a half inch, by eight feet one inch, or two diameters, which two hundred and forty-five feet, the whole sum of the square-root of the room, will sufficiently illustrate the same. I have

* It will be proper to remind those who are partial to spacious and numerous windows, and who are not disposed to modify their choice by motives of economy, that as the aggregate area of the windows is enlarged, it becomes increasingly difficult in winter to keep apartments warm; the heat produced in them being so very speedily communicated through the glass to the atmosphere without. It is for this reason that in Russia they generally make their windows double, and as air is a bad conductor of heat, the stratum of it interposed between the two windows in the same frame, tends very materially to prevent the temperature of the room from being carried off. The cold season is not so severe in England or of such long continuance, as to have occasioned the introduction of this practice generally for front windows; but it might be advantageously acted upon here with respect to lantern lights, employed to light staircases and galleries, as such windows when only single, contribute greatly to the steady dissipation of the warmer air which ascends to the top of the house.—(S.)

† There is but one objection against this rule, or it would be universal for all kinds of proportioned rooms on the same floor, and that is, the square-root doth not always happen to be exact enough to bring them all alike, but as the variation will be so small, it may be made use of, and if the area exceeds something of the standard of the principal of rooms, that room may be converted to a use which requires more than standard light, and the necessities of families sometimes require it. But, however, the rule will serve for the purpose near enough for practice.—(A.)

been the more prolix in this description, because the giving a proper light to a room by rule has been, perhaps, the least thought of in the disposition of the internal part of a building; and as I considered it a most essential and necessary part to be understood, I have given some rules whereby the knowledge of it might be obtained.

ON THE ORIGIN OF GLASS.

Windows may probably at first have been composed merely of paper, properly prepared with oil, which forms no contemptible substance for the admission of light, and defence against the intrusion of weather. It is still used by our builders as temporary windows in their unfinished houses, and not unfrequently, says Mr. Whitaker, in the precincts of Manchester for regular workshops. It was very early, and still is, used for dwelling-houses in many of the towns of Italy. Although some of the principal buildings, which we may reasonably suppose to have been executed in a superior manner, were fitted with glass, yet none in Europe were of this material at that early period.* The Romans and Britons never once thought of this seemingly obvious, and certainly very agreeable application of the metal; and that transparent foil, lapis specularis, or isinglass stone, which was used in the windows first at Rome about the reign of Augustus, and became very common before the close of the first century, but, in all probability, rarely introduced into the buildings of Britain. The superior edifices of this country could be furnished with no other than lattice of wood or sheets of linen, as these two remained the only windows of our cathedrals nearly to the eighth century, and the lattice continued in some of our meaner towns of Lancaster to the eighteenth, and in many districts of Wales and several of the adjoining parts of England is in use even to the present day.—(W.)

The origin of the art of making glass, like that of many other valuable inventions, is probably due to chance. Pliny relates that it was first accidentally discovered in Syria by some travellers while dressing their food, at the mouth of the river Belus. Being obliged to make a fire on the ground where there was a great quantity of the herb kali, that plant burning to ashes, its salts incorporated with the sand, and thus became vitrified.† The accident becoming known, the inhabitants of the neighbourhood and the city of Sidon availed themselves of it, and soon brought the art into use. However the correctness of Pliny's account of the discovery may be questioned, it is certain that the most ancient glass-houses with which we are acquainted were erected at Tyre, which was for many ages the principal mart of that manufacture; and as it is scarcely possible to excite an intense fire, such as is frequently necessary in metallurgic operations, without vitrifying some part of the bricks or stones of which the furnace is composed, we may easily conceive how the hint of making glass may have been thus accidentally furnished.—(Plin. Nat. lib. xxxvi. cap. 26.)

The information to be collected from the writings of the ancients respecting the manufacture of glass is extremely scanty. It is not supposed to have been made in Rome before the reign of Tiberius, at which period we are assured by various authors that an artist discovered the means of rendering it flexible; and it is added that he was put to death for his invention. Various utensils of glass have been found among the ruins of Herculaneum, which was destroyed in the first century of the Christian era, but these were no doubt imported from the east; and although it has been conjectured, from the circumstance of a plate of glass having been found, that glass windows were at that time in use, yet the first positive mention of them does not occur until more than two hundred years later. It appears, however, that the art of making glass was understood in Britain before the Roman invasion, for thick rings of glass were at that period in the island. They were denominated by the natives glass adders, and it is not improbable that they were distributed by the Druids as amulets. Some of these are still occasionally found in various parts of the country, and they are of different colours, and a few of them occasionally streaked; and we have the authority of history, that domestic utensils were formed of the same metal. We are told by Venerable Bede, a Saxon writer, and by Holingshed, the old chronicler, that glass was first brought into England from the continent by Benedict Biscop, who had taken upon him the habit of a monk, and that he came here with the archbishop of Rome, in the year 670, who brought with him painters, glaziers, and other such curious craftsmen, and that they were first employed in glazing the church at Weymouth in Northumberland. It does not, however, appear that glass was used in domestic structures until many centuries afterwards, or that the art was generally practised, for the luxury of such windows was slowly adopted; it being not until a century after the Norman conquest that they began to be used in private houses, and even then they were considered as marks of great magnificence. According to the best accounts, it was first adopted in private houses in the reign of Henry II., 1177, the first of the Plantagenet line. It was then used in small diamond quarries.‡ The old English poets speak of beryl and crystal being at one time used in windows:

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* Mica in some parts of Siberia is still copiously quarried, and is employed as a substitute for glass in windows and lanterns. It has been thus used in Russian ships of war, where it has the advantage of not being shattered, like glass, by the discharge of artillery.—(Brand.)

† Glass is now a well-known transparent and brittle factitious substance, of which the basis is silica, brought into complete fusion by the addition of one of the fixed alkalies. There are several different kinds of glass, adapted to different uses: the best and most beautiful are the flint and the plate-glass; these, when well made, are perfectly transparent and colourless, heavy and brilliant. They are composed of fixed alkali, pure silicious sand, calcined flints, and litharge, in different proportions. The flint-glass contains likewise a large quantity of oxide of lead, which by a certain process is easily separated. Crown-glass is that used for windows, and is made without lead, chiefly of fixed alkali fused with silicious sand, to which is added some black oxide of manganese, which is apt to give it a purple tinge.—(Author.)

‡ Even down to the reign of Elizabeth, Warton mentions a hall near to Brazennose College, Oxford, named Glazen-hall, from having glass windows, which were so valuable in dwelling-houses, that we find in the Northumberland household books, in 1567, in a survey of Alnwick Castle, this report, "Yt were good the whole lights of eving windowe at the departure of his

"And al the wyindowes and ech fenestrall,
Wrought were with beryll and of clere crystall."—(Lydgate's Troy.)

The making of glass was not commenced in England until the middle of the sixteenth century, at which time the chief works were in Crutched-friars; but the first sort of flint-glass was first made at the Savoy House in the Strand. Considerable improvements were made about the year 1635, in the reign of the Stuarts, when a patent was granted to Sir Robert Mansell, who also possessed a monopoly of the importation of Venetian drinking-glasses, the art of making which was not brought to perfection in this country until the reign of William III. The first plate-glass was made in 1673, at Lambeth, and its manufacture was introduced by the Duke of Buckingham, who, for that purpose, brought over several Venetian workmen. From this period the manufacture of plate-glass in this country and other parts of Europe has received various improvements.

ON COLOURED OR STAINED GLASS.

In all probability, the art of making glass and that of colouring it were discovered nearly about the same time; for if the substance of which glass is formed contain only metallic particles, it will always assume some tint or other, so that the idea of giving it the tinge of some precious stone was not difficult to be conceived. Pliny, who has given us a general but satisfactory account of making glass, plainly shows that the early ingredients were passed through repeated furnaces, and that one part was formed by blowing, a second by the lathe, and a third by cutting or carving like silver. In short, the liquefaction and coagulation of certain earths having been discovered, the mass was treated like a metal and greatly improved, until by certain admixture was produced a pure (as it is called) white glass. It is also certain that it was coloured in the melting by art; not only paste glass, and imitation of gems were produced, but changeable tints according to the points of aspect. The first glass manufactory known was that of Diospolis, the capital of the Thebaid. Proofs are not wanting to show that this art was carried on to a great extent among the ancients, as Pliny makes mention, among others, of artificial hyacinths, sapphires, and of that black glass which so nearly resembled the pearlion stone, discovered in Ethiopia by Obsidius, and thence termed Obsidion. As a proof that it was at a very early period used for the purpose of deception, we are told by Isebellius Pollio, that the Emperor Galienus, in order to punish a cheat who had sold his wife a piece of coloured glass for a geneal, ordered him to be carried away to the lion's den, and when there, desired a hen should be let loose upon him, after which joke, a crier proclaimed this to be the punishment of his roguery. It would appear also, that Alexandria was not alone famous for its glass-houses, and for the skill and dignity of its workmen, but also for the art of imparting vivid colours to the substance; for it is related by the Emperor Adrian, that he placed so much value on some coloured glass cups which he had received from an Egyptian priest, as to order them to be only used at festivals.

The materials used by the ancients for colouring glass, have not been described by any writer, it is therefore lost; but it is certain that metallic calces can alone be employed for that purpose, because their pigments withstood the heat of the furnaces. Ferruginous earth was most probably the principal substance used in giving to glass, not only all shades of red, violet, and yellow, but likewise of blue. It presents sometimes an artificial and sometimes a natural iron ochre which is employed in common works for the same purpose.—(Beckman.)

ON PAINTING ON GLASS.

We may also reckon painting on glass, and the preparation of coloured metals for mosaic work, as branches of the art of colouring glass;* and in all these a fine red is the most difficult to obtain. The old master-pieces of painting on glass are always found to have a transparent red varnish burnt into them on one side, or when stained through and through, the panes are thinner than those coloured in the other manner. In all likelihood, therefore, the old artists used iron or manganese, which pigment soon becomes, when greatly heated, blackish and muddy. And colour in mosaic work is obtained with less difficulty, as opacity rather than transparency is required. Those pieces which shine like the finest sealing-wax, are most valued at Rome, where they were at one time made from a kind of copper dross, and only by a man named Mathioti. At present several artists in that city prepare these materials, but are unable to give them a perfect colour.

During the reign of the Plantagenets and the Tudors, the windows were splendidly enriched with historical subjects and devices, depicted and shining forth in all the colours of the peacock's-tail. Lydgate mentions an old house that stood at Chilwell in Nottinghamshire, towards the latter end of the last century, "in which there remaineth, (says he) as an ancient monument in a great window of glasse, the whole order of planting, pruyning, stamping, and pressing of vine."

A poet of our own times enchantingly depicts the beauty of a painted window:

"A casement high and triple-arch'd there was,
All garlanded with carven imageries
Of fruits, and flowers, and bunches of knot-grass,
And diamonded with panes of quaint device,
Innumerable of stains and splendid dyes,
As are the tiger-moth's deep damask'd wings;
And in the midst, 'mong thousand heraldries,
And twilight saints, and dim emblazonings,
A shielded scutcheon blush'd with blood of queens and kings.

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lordshippe from lyinge at any of his castels and houses, and douring the time of his lordshippe's absence, or others lying in them, were taken downe or out of their frames and lade upe in safetty, as the decaye thereof shall be verie costlie and chargeable to be repayred.—(Northumberland Household Book.)

* It is a mosaic that Statius describes in the "Effulgent cameræ vario fastigia vitro." Pliny also represents the same kind of glass mosaic passing from the pavement to the ceiling; but in all the mansions that I have seen, this vitrum appears an opaque and coloured paste.—(A.)

"Full on this casement shone the wintry moon,
And threw warm gules on Madeline's fine breast,
As down she knelt for heaven's grace and boon;
Rose-bloom fell on her hands, together prest,
And on her silver cross pale amethyst;
And on her hair a glory like a saint:
She seemed a splendid angel, newly drest,
Save wings, for heaven."

DISSERTATION XXXIX.

ON THE ORNAMENTS OF AN ELEVATION.

"Giulio Romano in his architecture was manly and bold, and he was fond of strength and majesty; but sometimes inclined to encumber his edifices with too much and too many ornaments."—EUSTACE.

"Neither over-deck, nor leave it wholly bare."—POPE'S *Essay on Taste.*

When we consider the ornamental parts of a house on the external elevation, we say it is here that the architect is to show his taste and judgment; and here occurs the most difficult part of architecture. It is not only that a proper suitableness of ornaments is to be observed, but they must be well appropriated, proportioned, and disposed, so as to fill up useless vacuities, and to give an alleviation to the eye as it passes over from space to space, preserving an analogy in the keeping throughout the whole design, and so fitting and decorating the vacancies as not to crowd and encumber the parts with superfluous dress or decoration. Beauty and proportion are inseparable, for which reason beauty is always centered in proportion, and proportion is ever beautiful; therefore in nature, such are fixed laws by which they are formed; but when we deviate from nature, the further we recede, the more remote we are from elegance, because nature is constant and invariable in her productions, and admits of nothing to make her pleasing or beautiful but consistency, proportion, and harmony.

In architecture these necessary rules are always to be attended to, and when duly observed by the architect, genius will dictate a suitable selection, and taste dispose and give a proper contrast to his design.* It must be admitted too, that edifices broken and subdivided into too many little parts shows a want of good taste, and an ignorance of what is great in architecture, in painting, and in poetry, both of which notions are diametrically opposed to greatness and sublimity. Some of our young architects have made ornament or dress the principal of their design, and given decoration to ill-proportioned fabrics; a sure sign of a poor and low imagination. Superfluity is generally the thing to attract the eye of the vulgar, they therefore trick out their inelegant design to atone for the disproportion of the masses, and crowd and fill the spaces with some gay ornament to conceal that want of proportion, which is only a kind of unmeaning attempt at elegance; a subterfuge which some of our greatest architects have not been exempt from; while, in respect of their other designs, they have shown a refined gracefulness of taste worthy of imitation. Examples of the former class are too numerous, while the latter are, perhaps, (with shame be it spoken,) more envied than ad-

* A statue, by way of illustration, may have an elegant proportion without drapery, and be in nature just; yet nudities are not so pleasing to the eye as a statue in clothing after the antique dress, and even in this dress the fine proportion of the statue may be preserved; the tender softness of a Venus, or the muscular robustness of a Mars or a Hercules, may be shown through the drapery in certain parts. But then a fine-proportioned statue may have a superfluity of dress, or be badly disposed, or otherwise want simplicity in the folds, which will equally destroy the beauty and grace of the statue. So in a building, plain, just-proportioned masses will always please the judicious eye, while a proper disposition and appropriate ornaments add to it a pleasing elegance, and render it abundantly more agreeable where the parts which deck the fabric are only just what are necessary without superfluity or want.—(A.)

mired, which makes such examples less known to the young student in architecture, so as to attract his attention.

The progressive mode of ornamenting a house externally, is first, by a projecting plinth or base around the bottom of the building, from one foot wide and upwards to two feet or more, and about two inches thick. The next, by a division of the principal or ground-story from that of the story above, by means of a string-course from eight to twelve inches broad; and if thought proper, a further division or separation of the other stories by the same means. These string-courses are generally carried round in a horizontal or level line with the floor of joist. The third advance in decoration is by a large cornice around the top of the house, surmounted with a blocking course for its security. This is the general and most simple method of ornamenting the front of a house.* When further embellishment are required in the elevation, then the doors and windows are next to be dressed with architrave mouldings up the sides and over the heads. A further advance may still be pursued by additions and enrichments, (those of the orders are reserved for the next section,) namely, such as that of caps, friezes, and trusses over the heads of the windows above the architraves, and some of these caps may be again enriched with pediments.†

Such produces a good relief where every other window has a pediment over it, the others having merely a cap; and at other times the centre window may also have a pediment. A judicious and careful arrangement of these component parts of a building be sure will always show the taste and judgment of the architect. When decorations are thus judiciously adopted, they add a great deal of importance to the exterior part of a house, and when more enrichment is required, it is easy to add carved-work to the cornices, such as consoles and dentils; but in all these, the nicest care is required with respect to a proper distribution, so as not to fritter the members into each other, for there should be plain as well as enriched parts. When there is an error in this respect they cease to be ornaments; they are loads and patches upon the face of the buildings, they show the defect more plainly than any other part, and they seem as if they did not belong to the edifice.‡

In ornamenting a house, it is better always to be rather below profusion than to attempt it. Dress is the most expensive part in respect of labour, though it is in reality the quantity of materials in the fabric that makes the estimate great. Whenever enrichments are applied they should be few, and more particularly on the exterior. If carving is to be introduced externally in the face of a building, it should be in such places as are protected from the weather, as in bed-mouldings under the planceer of the cornice; for where snow or rain can lodge in the foliage, by time it will soon waste away those tender parts; the beauty, of whatever it may be, will therefore be of short duration; where rain lodges it will also receive and retain the dust, and when it overflows and is mixed up

* To ascertain the size of the cornice for a house, you are first to consider what order would be most in character with the building if adopted; then by dividing the height of the front equal to the order, including column and entablature, the cornice will be given, of which more or less may be adopted. Sometimes the cornice alone is used, at other times the cornice and frieze, and at others again the whole entablature of cornice, frieze, and architrave. Note, any other mouldings may then be adopted by keeping the same general proportion. Sometimes the height of the column is taken from the string-course of the first-floor to the parapet of the building.—(B.)

† The windows of the principal floor are generally the most enriched: the simplest mode of adorning them is to surround them with an architrave, which sometimes has, and sometimes is left without a frieze and cornice; frequently the whole of the windows are left plain except the central one of the second story. When the windows of the principal story have pediments, those of the story immediately above should have architraves surmounted by a frieze and cornice, and those of a next higher story architraves only. In respect to the breadth of the architraves of the doors and windows, these are to be regulated by the size or magnitude of the building; from six to nine inches are the general measures.—(R. B.)

‡ Mistaking ornament for beauty, and lavishness for richness, some of our young architects have so entirely overloaded their Italian edifices with ornament as to render them so many monuments of folly, many of which may be met with in our provincial cities and large towns, equally reflecting discredit upon the taste of the employer.—(Author.)

with water, it will run down and stain the fronts of the houses, giving them a dirty appearance, which inconvenience would be prevented were the members entirely plain.

In the matter of decorations the nicest care must be employed, for they lose their very nature when errors are committed in their construction: a house of a certain form, for instance, may look well without them; nay, we have already observed, that perfect proportion alone will give a house an air of grace; let the architect therefore be careful, where this is to be observed, that he does not afterwards deform his structure under the name of decoration, or observe the marks of proportion in the masses under irregular and disproportioned ornaments; for all must be made to bear a due and exact proportion with the material parts of the building and be subservient to one another. The more the enrichments are increased, the greater nicety and care are required, for the additional carved work must in the same manner be proportioned to the parts and to the whole.

DISSERTATION XL.

ON DECORATING AN ELEVATION WITH THE ORDERS.

"The higher beauties and nobler principles of architecture can be appreciated only by those whose taste has been cultivated by profound study and knowledge of the ancients."—Dr. Memes.

We are not again going to speak of porticoes, and their noble uses in public and private buildings, as these have already been treated of; our purpose here is to discuss on columns in fronts or attached to elevations, appendages required in all architectural edifices of magnitude or of consequence. Those noble monuments of antiquity, which during the longest period, and to the greatest number of competent judges, have yielded the most satisfaction, are justly esteemed standards of taste, and are rules by which all other works are to be tried. Columns and their pilasters, to houses in the country, generally ornament both stories, that of the ground-story and the floor above, which is the general height of country villas. In towns they sometimes embrace the three stories, such as the ground-story, first story, and dormitory story; houses here being always higher than in the country. In other instances, the first and second story only are ornamented with columns and pilasters, the ground-story being rusticated in the Greek manner, that is, by having horizontal groves about one inch and a quarter wide, half an inch deep, and from twelve to eighteen inches apart. When the centre of a building much projects on the ground-story in the front, frequently a columned portico is placed above and crowned with a pediment, which has always a noble and imposing effect; such was Wanstead House in Essex, and such is the leading character of many of our more noble Roman and Italian country seats in England. Where houses have projecting wings on each side of a noble centre with a portico, grandeur is further produced in the design; but such design must be the work of a noble genius to invent, and taste to arrange; the first of which is an intellectual or innate emotion of the mind. Beauty, the production of taste and the object of pleasure to the beholder, is appreciated by the enlightened understanding, whether exercised upon the productions of art or upon the works of nature. The beauty in buildings consists in certain adaptations, arrangements, and proportions of the parts to a whole, or in the fitness of means to an end. Beauty is always resolvable into some effect or relation, discerned and approved by the understanding, or such is the term taste.*

* In Rome, where almost every noble house is decorated with the orders, the external walls of some of the palaces are plastered with stucco, while the windows and door-cases, with the angles of cornices, only appear of stone. Even the ornaments of the most splendid, such as the Barberini, Odescalchi, and Farnesi, are confined to pilasters or half pillars, a

Wherever columns are introduced, the architect should be careful to arrange the windows so as to fall centrical between each column; but some little liberty may be taken here when a difficulty arises, as the apertures of windows will never appear to the eye when executed so exact as they do in an elevation, because the eye is considered as a station-point for the time from which the building is seen; whereas in an elevation the eye is supposed to be gliding over the whole surface at once, it is therefore only ideal. The same may be said as to the arrangement of the heads of the upper windows under the portico; these may appear close to the architrave of the entablature in the geometrical drawing, but we are to consider there is the whole depth of the architrave above, up to the ceiling of the portico. In consequence of this false appearance these windows are frequently made shorter in height than they otherwise would be. The cornice only of the portico and not the entablature is to be carried along the front where there are no wings, but where these occur the whole entablature should be continued round. The architect is to remember that the heavier and more massy orders are always to be applied to the ground-story wherever more than one order is employed; but that is rarely the case. They must be very magnificent edifices indeed where one tier of columns are placed over another;* but where this is done the Ionic should be placed over the Doric.†

In town-houses an attic story is frequently raised above or over the entablature of the orders, which has a very grand and magnificent look, particularly where there are wings or breaks at the end of the house. In this story it is a rule to have the windows all square with a single architrave round each; here is generally also a blocking course below or over the entablature, and a small cornice running along the top of the building, with a blocking course. At other times, where the attic story is not introduced, a balustrade is placed above the general cornice; but this is always where the building is in the Roman or Palladian style, which baulisters had their origin in the flat or eastern roof. The attic is improper to a country house, for these buildings should be but two stories high. In cities and large towns, where the houses are four stories, the attic being separated from the three lower stories by a bold cornice, and a stone coping on the top of the building, with a face of nine inches below, brought forward one inch directly under the coping, such has a chaste and good effect, by taking off the towering height that would otherwise be seen. The houses in Eaton Square, at Pimlico in London, built by Mr. Thomas Cubitt, will illustrate this remark.

mode of decoration which indeed is pleasing to the eye, but inferior in grandeur to the detached column and pillared portico. Ornament, it is true, must be subservient to utility, and in streets where space is wanting, the open gallery and spacious colonnade must be resigned, and their place supplied by decorations more compact although less stately.—(B.)

* At Apsley House, the town residence of the Duke of Wellington, the colonnade, or pillared portico stands over an arcade or arch-porch. This gives the portico a more firm and steady base.—(B.)

† At Buckingham Palace the Corinthian is placed over the Doric: this is erroneous in principle.—(B.) In raising buildings to a required height, the ancients either erected the orders on a pedestal or on a rustic basement, or if that proved inefficient for its magnitude, they placed an attic over the order, separated by the entablature. This among the Romans has frequently been practised, as especially may be seen in their triumphal arches, which the moderns in respect to the attic story have imitated; but the ancient Greeks in their public buildings, it is to be observed, had not the orders one over another on the exterior of their edifices as we see in some of our English edifices, and wherever this is observed to be the case, the columns have always a tottering and unstable appearance. Proportion, I have said, is the first elementary principle in designing a public building; this is not only confined to the masses which first strike the eye, but is to be observed in all the other parts; the mass is the first that arrests the attention, afterwards the eye examines the details. The just appropriation of the parts contributes to beauty and harmony; but such just appropriation is not easily acquired, it must arise from a genius formed by nature and cultivated by study. Such is the art of painting; though the rules may be well known in general, the application of them with success may be difficult to some, and to excel there may be found but one Raphael among the many. It is the same in sculpture and architecture; an age scarcely produces a Phidias, a Michael Angelo, or a Sir Christopher Wren, and yet in each science multitudes have had the same rules and principles taught them, and perhaps, with the exception of the latter, had equal opportunities for improvement, but their judgments were fixed upon a wrong basis.—(R.)

CONSIDERATIONS

ON THE EXTERIOR OF HOUSES; WHAT TO BE MATERIALLY CONSIDERED.

"In the composition and distribution of different component parts of an elevation, the members ought to be such as would raise in the mind of the observer a suitable and appropriate character according to their destined purpose, for many members may be said to possess no character at all."—NEWTON'S *Vitruvius*.

The windows in the ground-floor of a house may be made wider than those in the floor immediately above if so desired; but the centre of each window above should be placed directly in a perpendicular line with those below.

All winter houses should be contrived with as few windows and doors as convenience will permit, as they are so many inlets for air, that must render the rooms more cold. Those for summer should be more open, to cool and make the dwelling pleasant and agreeable.

Piers should be placed directly over each other in an elevation, and not stand over a void; and at all times be wider than the window-openings, where you wish to give the house a substantial appearance of strength.

Never form a niche in the front elevation of a house without placing some object within it, such as a statue of some of the Greek or Roman personifications, a vase of flowers, or some such object.*

A country seat, with a double flight of steps outside ascending to the front door, where there is a portico, or a raised terrace in the Italian manner, has always a grand appearance.

The entrance-door and windows within a portico should always be placed directly opposite the centre of the openings of the intercolumniation.

The floor of the ground-story should at all times rise considerably higher than the ground outside the house, and the ground gently slope every way from the edifice to carry off the rain-water that falls.

Be careful that all string-courses and cornices run in continued lines along the front of the house, and return round the sides, for these tie the building together. Horizontal projecting lines, properly arranged, where they are not too close together, give a beauty to the Greek and Roman architecture.

Make the mouldings that are above the head or horizon, and those that are below it, radiate optically towards the eye, that their real and full form or whole contour may be visible.

Roofs and the various chimney-shafts should all be drawn and to their proper heights in an elevation. Where this is not done the drawing is liable to mislead, and the house when built, instead of appearing handsome and beautiful, will, by their irregularity, present an ugly appearance. It is better to see them at first and alter them on the plan, than to have the house when built disfigured.†

* Niches used to be formed in a conspicuous part of the gable in the centre of colleges, which contained a bust of the founder; and over church doors during the middle ages there was placed a statue of the patron saint.—(B.)

† Frequently do we see double and single chimney shafts along the ridge of a building; one looking heavy, the other meagre. Now this might easily have been remedied by adding a rough frame-work of deal quartering on one side of the single chimney shaft, and afterwards lathing and plastering the same over, leaving a groove to show a double stack. Here the large shafts will require to have a groove cut in the middle of the edge of each. The plastering may then be coloured over to correspond with the brickwork or stucco so as to appear uniform.—(R. B.)

CAUTIONS.

THE FAULTY PARTS IN ELEVATIONS OF HOUSES THAT ARE TO BE AVOIDED.

"Precedents cannot be admitted in extenuation of faults."—DR. JOHNSON.

Some houses in their separate elevations are made up of patches like quilt-work, the front being generally all that is aimed at by the tyro designer, while each of the sides of the house are hideous malformations, with no cornices being brought round from the front or pediment; thus, as it were, dividing the centre from the flanks, instead of binding the whole together by their proper horizontal lines running round the building.

A blank window to a house shows poverty of design. In this case a frame and sashes should be put in as if real, plastered inside and then painted black: the blank in this case will not be observed.

Never place a solid over a void, I mean a pier direct over a window; it is false in principle, and liable to unequal settlement, by which the window arches are sure to fracture.*

A chimney shaft in the end of a house directly over a window, will make the window look as if it came through the chimney. The acroter on a pediment or gable is here an exception.

Never place chimneys in the outer or front walls of a house, as was the practice during the Tudor period: the room will be cheerless and the fireplace inconvenient.

Do not erect a colonnade or a verandah on the north side of a house, where the sun never shines, its original intention being to keep off the fervent rays of that luminary during summer; it is only applicable to south fronts.

Do not disfigure the front of a building, where grandeur is required, by too many divisions, for the breaking of one large mass into many small ones destroys all greatness of manner, and impairs in no small degree the general nobleness of effect.†

An elevation of a house much frittered up by little parts destroys grandeur, though it may produce a picturesque effect, for grandeur cannot exist without magnitude.

Do not mix different styles of architecture together in the same building; it is absurd, and shows a great want of taste. I have sometimes met with a house like this, built in the Tudor style externally, while internally it was Grecian.

Convex friezes to Roman orders, and to window-caps, are vile heavy objects, and which appear bursting by the weight of the cornice above.

Rustic angles to buildings where they are not in character, introduced for mere ornament, are bits of useless finery, and have a tendency to make the whole building look absurd and prison like. Rustic belongs only to the basements of the more massy Roman stone buildings. Of such modern gewgaw buildings well might the poet remark,

"And lin'd with bits of rustic makes a front."—POPE'S *Essay on Taste.*

Venetian windows to bed-rooms in our climate make the rooms too cold. These windows should never be placed in any other part than the ground-story and in the wings, more particularly for a library or billiard-room.

* I would advise every gentleman before he commences his building to look well to this on the drawing laid before him, whether the solids will stand over solids, and voids over voids, when executed. This is an error in architecture I have observed greatly prevailing at this time in our provincial cities and suburban buildings, which is much to be lamented, as those buildings can be but of short duration, and must inevitably bring disgrace on the designer, if designs they can be called, where every principle is at variance with the laws of gravitation and geometry.—(R. B.)

† St. Peter's at Rome is replete with all the vices which prevailed during the earlier periods of the restoration. It is externally a huge mass of littleness, and it exhibits a vast superficial display of blank architecture, producing a meretricious richness of effect, absolutely distressing to the classical eye.—(W.)

Country detached villas should never be built more than two stories high, being here much exposed to storms; they would also look inappropriate and out of place.*

Never introduce pilasters of any order in the front of a house without an appropriate entablature on their top, or some office for them to perform more than mere ornaments; this is an absurdity often to be met with in small houses in the country at the angles of the building, and more frequently where the house has an overhanging roof in the Tuscan style.

Half columns attached to fronts of houses have a very disjointed appearance, particularly that of the Ionic order, as that part of the volute towards the wall always appears cut off. Those columns should be made three-quarters of the circle. The volute adjoining the wall may then be made to appear entire by sinking a groove into the wall around it.

A pediment with mouldings, partly returning at the lower angles in a horizontal direction, but not continued through in consequence of a window intervening, is bad architecture, as the tye of the roof part is here cut off.

Open pediments, as they are called, by being divided at the top to receive a bust of some noted personage, is bad in principle, and should never be adopted. It appears as if strength was first aimed at, and afterwards severed, or that the pediment was erected to carry off the water, and then cut open to let it in.†

Sashes with circular heads, and the bars in the Gothic style, is an incongruous mixture, which may frequently be seen in our dwelling-houses.

Sashes with a bar up the middle of them‡ are very improper, as the bar comes direct in a line with the sight. An unequal number of squares in the width is more consistent. It is a good way in some situations to have the middle squares the largest.

A pediment over a window or door in a circular headed recess is useless, as the recess answers the purpose of the pediment, that of keeping off the water from the head of the windows. This absurdity may be seen in the front of Somerset House towards the Strand, and also at the Horse-Guards leading into St. James's Park.

Never have the piers in a house between each window narrower than the windows themselves,§ as the house will have a weak appearance.‖

Never place the doors or windows too near the angles of the building, for here the greatest strength is required, and the walls at those places are subject to lateral pressure.

Vases on the top of a dwelling-house are inconsistently placed, they should be used as ornaments along the ground story, and placed on pedestals around a terrace or flight of steps.

Balls on the top of a house or on lofty entrance piers have a terrific appearance, they never look secure; on piers, crests are more appropriate and beautiful.

In a portico of two columns, always introduce a pilaster opposite each column against the wall. Columns without pilasters, as some builders execute them, appear inconsistent.

For porticoes of more than two columns, never introduce pilasters along the wall opposite each column; it is contrary to order; but only opposite the two end columns.

* None but a fool, said a certain artist, would ever build a house upon a hill, unless there was another hill immediately behind as a shelter against the northern storms.—(Wine and Walnuts, or After-dinner Chit-Chat.)

† During the restoration of the ancient style by the Italians, many vitiated corruptions were formed. First, a column and pilaster on each side, clustered together like the Gothic pointed pillars attached to the front of a wall, with the entablature above broken over them. Second, mural columns, situated as above with the entablature broken over them, and after being continued on each side to a short distance, the frieze and architrave being cut in twain to admit of an attic window. Third, an open pediment formed by cutting away the apex. Fourth, a pediment with its horizontal moulding cut into two parts in the middle.—(W.)

‡ This does not allude to the French casements,—those are exceptions.—(B.)

§ That is, where they are equally divided.—(B.)

‖ This does not refer to the Italian treble window.—(B.)

Never flute the Doric columns entirely down to the stone step on which they rest, but always have a plain part, as a plinth or bond, and each flute weathered to carry off the water; for when the arris flutes go to the bottom they are liable to be broken off.

Always let the number of columns to a portico be equal, and never have a pediment over either a door or window within the portico, such is inconsistent; the pediment being originally intended to carry off the rain which fell on it; here the windows and doors are protected.

On all domes let there be a lantern-light or sky-light-kirb on the crown, like St. Paul's or Melbourn House near the Horse-Guards. A dome without either looks like a balloon rising, or an egg in a cup. All domes should be raised on a cell or tambour, with a series of circular steps.

A window with a level head in a recess which has a circular head, should never be carried up higher than the springing of the arch of that recess. If the window is circular-headed, it should spring from the same line as the recess; contrary to this it is erroneous, though frequently to be met with.

In the metopes of the Roman Doric order, wherever or to whatever use applied, never introduce ox-sculls; they are applicable only in the heathen temples of sacrifice. In domestic or Christian edifices for any other purpose they would be an absurd emblem.

In a design for a building in the Greek character never have arches of any kind, for the arch was not known to those people, it being long afterwards an invention of the Romans.

Always have roofs low; (unless in Tudor structures;) a slanting roof is no beauty to a building, except in the Tudor architecture: here they are generally deemed picturesque by their unequal height and varied intersections.

The crown-moulding of a cornice in a pediment over a portico, where it is returned into the building on each side, without continuing the same along the top of the other mouldings of the cornice running round the building, is neither sound nor good architecture.

Finishing any part of a cornice on the outside of a building with a carved moulding on the top without a projecting band over, where it is exposed to rain is improper, because it soon decays; such is the case with the abbacus on the columns of the Temple of Jupiter Stator at Rome, and which has lately been erected at the new Treasury by the late Sir John Soane.

Dripping eaves should always be avoided;* they are the occasion of decay to the basement of a house, by the frequent falling of rain, injuring, and producing the dry rot: this should be prevented by concealed gutters.

Avoid having the chimney tops appear irregular above the roof; they always look as if no thought had been given to this part of the building, but carried up as chance directed.

Pediments over a series of pilasters or false or sham porticoes, when attached to a building with an attic story above is unmeaning, and looks like the end of a roof coming through the wall; such an error may be seen in the elevation of Greenwich Hospital fronting the river Thames.

SUMMARY FAULTS.

Pillars that support nothing, that are coupled together, and hid in niches and recesses. The repetition of the same order on a different scale, or the introduction of another order in the same story, or on the same plane. The same order carried through different stories, and the consequent confusion of proportions. Multiplicity of pedestals. Prodigality of ornaments. Breaks, interruptions, or waving of the cornice. Profusion of pediments, and pediments of various forms, such as curves, semicircles, or of circles advancing, receding, &c. Abuse of the rustic. The introduction of low stories, called Mezzanini, and little windows between the principal stories. The protuberance of columns in the shaft. Multiplication of slips of columns, and pilasters with portions of capitals crowded together in the angles of the edifice. Though many more

* Sir John Cullumn said, a smoky house and a dripping eve were a curse.

might be mentioned, these are sufficient to give the young architect an idea of the censure passed by the rigid admirers of antiquity on the modern style; and certain it is, that, if greatness of manner consists in presenting here and there essential parts to the eye, the more breaks, interceptions, and divisions there are, the more the appearance of the whole must tend to littleness and deformity.

Surely the peristyle or range of columns, the uninterrupted entablature, the angular pediment unbroken and unencumbered, delight the eye more by their uniform grandeur than pillars crowded into groups, cornices shapened into angles; and pediments twisted into curves are flourishes which break one grand into many petty objects, and can neither fix the sight nor arrest the attention.—The former is the Grecian the latter the Roman.

DISSERTATION XLI.

ON SECTIONS.

"Plans and elevations without sections are like so many locks without keys."—PERRAULT.

Without a practical knowledge of the anatomical part of a house (if I may so express myself) the various sections cannot properly be made, and the designer literally knows nothing of architecture beyond the shell or outer surface; neither are plans and elevations of little use without the sections, which constitutes the third division of Design. But it will be necessary here in a few words to define what sections are. First, then, if the front of a house be drawn to a scale on paper in all its relative proportions, it forms what is called an orthographical or geometrical elevation. Now, if the front wall of this house should at any future period be taken down for the purpose of altering its external shape or re-building it anew, and by that means laying entirely exposed the ends of the floors and joist open with the side walls, and the inner partitions left standing, with all the doors and fireplaces exposed to view, and a drawing of the ends of the walls with the cornices, skirting, edges of the floors, ends of the joists, and timbers of the roof, doors, windows, and staircases seen within the rooms, be now drawn on paper by a scale in their true and proper position and proportion, and the same be shadowed and coloured as the whole appears to the eye; then we say such a representation is a section of the house as it stands before us. When a section is made or cut through the narrowest part of the house, suppose from front to back, i. e. south to north, it is called a latitudinal or transverse section. And when the section is made on the largest line or diameter of the house, suppose from east to west, such is then called a longitudinal section.

Now in making out a set of drawings for a house which is to be erected, this knowledge is of the utmost practical consequence, for without sections the builder has none of the internal heights of the rooms, and other essential parts required for his direction and guidance; such as the height of the doors, height of windows from the floor, and distance of the heads down from the ceiling. Neither can the architect himself without a section calculate the headways of his stairs, or lay open to view the finishing of the rooms on the inside of the house, such as chimneypieces, skirting, doors, window-shutters and cornices. The knowledge of the profiles of cornices in respect to their effect of light and shadow on the various sides of the room, as well as their sections, and the cornices of the exterior sections, is also an important branch. Likewise architraves, archivaults, and the flowers in the middle of ceilings all require cross sections, without which no perfect idea could be formed of their figure and effect, so as to be depended upon when executed. It is not only necessary to show the height of all fireplaces, but also the winding tract of each chimney-flue or funnel up through the walls between one floor and another. Those are to be shown by partial sections.* In this part of

* The course of the flues up the walls must be shown by dotted lines for the guidance of the bricklayer, or the chimneys, after built, will very probably be liable to smoke. That an apartment is uncomfortable which is subject to such

designing, a practical or mechanical architect has the advantage over a mere pictorial draughtsman, and those who have had the most experience, and been the most indefatigable in their researches as to the mode adopted by the ancients in their remaining works, are best qualified to be entrustedwith the erection of buildings.

As to the height of rooms in each floor, that must depend on the class of the house, and also on the size and proportion of the rooms, as I have elsewhere already observed; but the following are the most general heights: In a first-rate house three stories high, ground-floor, fourteen feet; first-floor, fifteen feet; bed-room, ten feet. In a second-rate house, ground-floor, twelve feet; first-floor, thirteen feet; bed-room, nine feet. In a third-rate house two stories high, ground-floor, nine feet; first floor, eight feet, and garrets seven feet. Those are general measures, but when the whole of a building is to be proportioned, then the floors will differ by some odd inches. Finally, it is necessary to observe, that all kitchens should be lofty, and large, in proportion to the house.

a nuisance, cannot be controverted; yet with all this we find a very general disregard of those precautions which would admit of a strong draft up the chimney. Masons and bricklayers too often follow their own circumscribed notions, which are either influenced by convenience to themselves or by local customs, with little regard to absolute principle. Now it frequently happens that the smoking of chimneys is occasioned by the flues being carried up narrower at the top than below, or their having one or more sharp angular turns formed in them. When chimneys are constructed in a pyramidal or tapering form, and at the same time unpargeted or left rough or unplastered, with bits of stones or bricks projecting into them, as well as the mortar, which is pressed from the joists of the work left or remaining uncovered, there smoking is almost certain. The air, rarified by the fire, passes up a chimney with the smoke; but as it recedes from the impelling power, or fire, it moves slower, and requires a greater portion of space to circulate through. If then the upper part of a chimney instead of being wider than below be contracted, and if the roughness of the walls, (which ought to be smooth) concur at the same time to increase the obstruction, it is no wonder that the smoke, taking the path of least resistance, should find its way into the room whenever resisted by a current from above.

The fireplace is generally an exact square. Its height in large rooms is often, very properly, made less than a square, and in small rooms particularly; when the chimney is in a corner it is rather more in height. In rooms from twenty to twenty-four feet square, or of equal area, it may be from four feet to four feet and a half broad. In rooms from twenty-four to thirty feet square, it may be from four and a half to five feet; and in rooms still larger it may be extended in a similar proportion to six feet. If much beyond six feet, whatever may be the size of the room, the effect will not be good; for if the fire be proportionate, it will excite rather the idea of a furnace. Two fireplaces will certainly be better in an assembly or public room than one of such overgrown dimensions as would be required. As to the effect of the form of this aperture on the draft, its breadth is not very important, provided it be not so narrow as to prevent the covings from standing with their greatest powers of reflection towards the room; but the height should seldom exceed two feet six inches to the underside of the mantle. The throat should not be more than four or five inches wide; but should be constructed by a part moveable at the back when the chimney requires sweeping; the nearer the throat is brought to the fire the stronger the draft will be. Note: another method of increasing the draft of a chimney consists in setting the grate, if a Bath stove, eleven or twelve inches from the fender; and in cutting away the back of the chimney so as to leave a space of two inches between it and the back of the grate. If the grate be of the common form, the sides should be fitted up with brick-work; by this construction the air that passes behind the back of the grate, assisting to impel the smoke, prevents its bursting into the room. The draft may be still further increased if required, by admitting a passage of air up through a small grating directly under the grate inserted into the hearth-stone; but this place must have a well underneath for the ashes, which is to be occasionally taken up.

The flues of chimneys above the throat are usually made equal to about twelve inches square, and the general rule is, to make the area of the horizontal section of the flue equal to the area of the horizontal section of the pipe. If the flue were made circular and smooth, this mode of proportioning its size would doubtless be found to allow a good passage for the smoke. Large or high chimneys always draw better than low ones, as in proportion to their length the influence of the wind extends a shorter way down them. The same is the case with those chimneys where the flue is largest at the top; the gusts of wind from the top soon receive a check and again return, while the pyramid flue brings the whole of the smoke back into the room. When chimneys are bounded on the top by a zig-zag line, so as to resemble the teeth of a saw, they are found to be far less liable to smoke than they are in other respects under the same circumstances; and in a greater variety of cases the cheap and easy expedient of altering the tops of smoky chimneys to this form has been attended with complete success. The partitions in a stack should be indented, as well as the outer walls of the chimney.—(Author.)

DISSERTATION XLII.

ON PAINTING AND DECORATING THE INTERIOR OF A HOUSE WITH COLOURS; THEIR QUALITIES AND LAW OF HARMONY CONSIDERED.

"Who can paint like Nature?"—THOMPSON.

Without a knowledge of the peculiar expression or emotion produced by different colours, and an acquaintance with the laws which control the harmonious decoration of a house; with those materials the architect may destroy the effect of the most chaste and graceful combinations of mass and form, as well as the grandest arrangement of lines.* Now colour is capable of producing the most important effect upon the mind. It gives character to the hall, the staircase, and the drawing-room, effectually calls the imagination into play; requires no previous study to render its effects to be deeply felt by the uneducated, and the refined mind. It acts upon the feelings by sensations either sublime, cheerful, or gloomy.† It is a principle by which the artists of all nations and of all periods have sought to appeal to the feelings. Egypt in all her sublimity,‡ Attica in all her purity

* House-painting is the art of covering with various suitable pigments, all such wood-work, walls, and ceilings, both of the interior and exterior of houses as is found requisite. It may be divided into three separate branches, viz. plain painting, graining, and ornamental painting.

The material chiefly employed in plain painting is white-lead. This is a carbonate of lead produced by the action of the vapour of vinegar on sheet lead; and when ground up with linseed oil, forms the common white-lead paint in use: it is improved by being kept for several years. To produce the different tints, various colours are added to the white-lead base, in quantity according to the intensity of the tint desired, amounting sometimes to an exclusion of the white-lead in the upper or finishing coats. The following are the colours generally used by the house-painter:—

WHITE.
White lead,
Nottingham white,
Flake white.

BLACK.
Ivory black,
Lamp black,
Blue black,
Patent black.

BROWNS.
Burnt umber,
Raw umber,
Vandyke brown,
Purple brown,
Spanish brown,
York brown.

REDS.
Vermillion,
Scarlet lake,
Crimson lake,
Indian red,
Venetian red,
Red lead,
Orange lead,
Burnt ochre,
Burnt sienna.

YELLOWS.
Chrome yellow,
King's yellow,
Naples yellow,
Yellow ochre,
Yellow lake,
Raw sienna.

BLUES
Prussian blue,
Indigo,
Cobalt,
Ultramarine.

GREENS.
Brunswick green,
Emerald green,
Verdigrease.

† White, as it is the colour of day, is expressive to us of the cheerfulness or gaiety which the return of day brings. Black, as the colour of darkness, is expressive of gloom and melancholy. The colour of the heavens in serene weather is blue; blue is therefore expressive to us of somewhat of the same pleasing and temperate character. Blue was held by the oriental nations in great esteem, probably on account of its being the colour of the sky. The robe of the ephod in the splendid dress of the high priest among the Hebrews was all blue; this was also a prominent colour in the hangings of the tabernacle. The magnificent feast of the Persian king, Ahasuerus, was given in a place hung with white, green, and blue hangings, upon a pavement of red, blue, white, and black marble. (Esther, i. 6.) Light blue is still a favourite colour among the Persians, in whose dress it is more extensively used than any other. In Arabia also the dress of the women commonly consists of an ample shift and drawers of blue linen; and in Turkey and Syria the large wrapper in which the women envelope themselves is often of that colour. We know not on what grounds Paxton finds that blue was not much in the estimation of the Orientals, particularly as blue is also employed very prominently in the interior decorations of houses and public buildings. (Travels in the East.) Green is the colour of the grass on the earth in spring: it is consequently expressive to us of some of those delightful images which we associate with that season. Some colours acquire a character from accidental association; purple, for instance, has acquired a character of dignity, from its accidental connexion with the dress of kings. (In the reign of the Roman emperors no subject dared to wear purple.) The colours of ermine have a similar character from the same cause. The colours in every country which distinguish the dress of magistrates, judges, &c. acquire a dignity in the same manner.—(Alison on the Nature and Principles of Taste.)

‡ The walls and ceilings of the Egyptian houses were laid out in compartments (or stucco work) with admirable skill in zig-zag, scroll-frett, and chequer-work, and painted with great taste with pure colours (except the green,) each colour well disposed for contrast and relief. Those used consisted of vermillion, blue, yellow, green, white, and black. Vermil-

and grace, Asia in all her wild luxuriance, Europe in the middle ages,* and the Italian architecture at the revival have derived powers of expression and emotion from this source, which was subsequently neglected; and which it is the interest of the architect of the present day to revive, study, and render applicable to his own designs.

The different sentiments of mankind with regard to beauty of colours are inconsistent with the opinion, that such qualities are beautiful in themselves. It is impossible to infer, because one particular colour is beautiful in one country that it will also be beautiful in another; now this immediately concerns us; for there are, in fact, many instances where the same colour produces very different opinions of beauty in the minds of different races of people.† Black to us is in general an unpleasant colour; in Spain and in Venice it is otherwise. Yellow is to us, at least in dress, a disagreeable colour; in China it is the favourite colour. White to us is extremely beautiful; in China, on the contrary, it is extremely disagreeable. If we inquire on the other hand, what is the reason of this difference of opinion, we shall uniformly find, that it arises from the different associations which these different people have with such colours; and that there, opinion of beauty is permanently regulated by the nature of the qualities of which they are expressive. Black is to us an unpleasant colour, because it is the colour appropriated to mourning; in Venice and Spain it is the colour which distinguishes the dress of the great. Yellow is in China the imperial colour, and sacred to the emperor and his property; it is therefore there associated with ideas of magnificence and royalty. Among us it has no distinct associations, and is therefore beautiful or otherwise, only according to its degree of shade. White is beautiful to us in a supreme degree, as emblematical both of innocence and cheerfulness; in China, on the other hand, it is the colour appropriated to mourning, and consequently very far from being generally beautiful. In the same manner wherever any peculiar colours are permanently favourite, there will always be found some pleasing association which the people have with that colour, and of which they in some measure consider it as significant.

It is further observable, that no colours, in fact, are beautiful but such as are expressive to us of pleasing or interesting qualities. All colours obviously are not beautiful, for the same colours are beautiful only when they are expressive of such qualities, and in general I believe it will be found, that among all the variety of colours we are acquainted with, those only are beautiful which have similar expressions. The common colours, for instance, of many indifferent things which surround us; such as the earth, stone, wood, &c. those have no kind of beauty externally, and are never mentioned as such.‡ The things in themselves are so indifferent to us, that they excite no kind of emotion, and of consequence, their colours produce no greater sensation, as the signs of such qualities, than the qualities themselves. We take our ideas of beautiful colours from the great. Thus the colour of common

lion was much esteemed in those days, being frequently referred to by the sacred writers: see Jeremiah, xxii. 14: "I will build me a wide house and large chambers, ceiled with cedar and painted with vermillion."

* During the middle period the walls of some of our palatial buildings were painted green, bespangled with stars of gold, while others were embellished with landscapes painted on them, or historical pieces on a white ground. Friar Simeon has described the painted chamber at Westminster, as he saw it in the reign of Edward III., A.D. 1322. Near this monastery of Westminster, says he, stands the most famous royal palace in England, in which is that celebrated chamber (the late House of Commons,) on whose walls all the warlike histories of the whole Bible are painted with inexpressible skill, and explained by a regular and complete series of texts, beautifully written in French over each battle, to the no small admiration of the beholder, and display of royal munificence.—(A.)

† This shows the necessity of studying and adopting colours to rooms to every varied style of architecture agreeably to what is in use in each particular country, for we find that what colour is cheerful in one is absolutely the colour of mourning in another.—(Author.)

‡ There are colours, perhaps, more generally beautiful than those which distinguish trees, rocks, or water, or cottages, or ruins, or any of the ordinary ingredients of rural scenery. Yet no colours but the natural could possibly be beautiful in the imitation of such scenes, because no other colours could be expressive to us of those qualities, which are the sources of our gratification from such objects in nature. This idea does not extend to polished marbles, which are more or less beautiful. The stones now used in the Suspension Bridge near Bristol, represent the most beautiful landscapes.—(Author.)

furniture never seems beautiful to us; it is the colours only of fashionable, or costly, or magnificent articles which are ever considered as such. It may be observed also, that no new colour is ever beautiful until we have acquired some pleasing association with it. This is peculiarly observable in the article of dress, and indeed it is the best instance of it, because in such cases, no other circumstance intervenes by which the experiment can be influenced. Most people must have observed, that, in the great variety of new colours which the caprice of fashion is perpetually introducing, no new colour appears beautiful at first sight. We feel on the contrary a kind of disappointment when we see such a colour in the dress of those who regulate the fashions instead of that which used to distinguish them; and even although the colour should be such as in other subjects we consider as beautiful, our disappointment still overbalances the pleasure it gives. A few weeks, even a few days, alter our opinion; as soon as it is generally adopted by those who lead the public taste, and has become of consequence the mark of rank and elegance, it immediately becomes beautiful. This, it is observable, is not peculiar to colours that in themselves may be agreeable, for it often happens that the caprice of fashion leads us to admire colours that are disagreeable, and that not only in themselves, but also from the associations with which they are connected.* If the faculty by which the beauty of colours is perceived had any analogy to a house, it is obvious that such variations in our opinion of their beauty could not take place.

When the particular associations we have with such colours are destroyed, their beauty is destroyed at the same time. Rose colour, for instance, is a more rich and beautiful colour than that of mahogany, yet if any man were to paint his doors and windows with rose colour, he would certainly not add to their beauty. The colour of a polished steel grate is agreeable, but is in itself not very beautiful; suppose it painted green, or violet, or crimson, all of these colours much more beautiful; and the beauty of it is altogether destroyed. The colours of cedar, and of Spanish mahogany, and of satin-wood, are not nearly so beautiful as many other colours that may be mentioned. There is no colour, however, with which such woods can be painted, that would be so agreeable as the colours of the woods themselves, because they are very valuable, and the colours are in some measure significant to us of this value. A ray of light refracted by a glass prism is decomposed into seven rays, red, orange, yellow, green, blue, indigo, and violet. Each of these rays is less refrangible, as it is nearer to the red. This ray is of all others, that which strikes the eye with the greatest force, and produces on the retina the liveliest impressions. The eagerness of savages for stuffs of this colour is well known; it is the most brilliant and splendid of all.†

In nature the colours of all plants are seen to harmonize, let there be ever so many different sorts grouped together; which is produced by the reflection of the colour of one plant upon another by the light from the sky; which, whether it is morning, noon, or evening, equally sheds its influence over all nature's productions, and invigorates them with life. Nothing is crude or has a sameness in the colours of nature; even the same plant has different degrees of colour, light, and shade; but all is soft, agreeable, and harmonious. Hence

> "Nature to make her beauties known,
> Mingles colours not her own."—Dr. Watts.

* A plain man would scarcely believe, that the colours of a glass bottle or of a dead leaf, such as that of the sage-leaf, or a lump of clay, &c. could ever be beautiful; yet within these few years not only these, but many more colours of this kind, might be mentioned, that have and still are fashionable and admired, that of the sage-leaf is justly so for the walls of rooms. How much more soft and beautiful in their green colour than the raw green, where the deep blue predominates.—(B.)

† I have seen maniacs whose madness after a long suspension, never failed to break out at the sight of a red cloth, or of one clothed in that colour.—(Richerand's Elements, p. 253.)

In the dress of our own people, most of us must have seen the discordant colours that are worn even to the disparagement of the person, and showing a great want of taste. In many of our dwelling-houses the same bad judgment in painting and colouring is often discovered to prevail. Walls, some of which are coloured like that of indigo, others of a yellow, the colour of saffron, and others again of a fiery red;* but of all colours there are none so harmonious as the sage green and the drabs. Now as different colours suit different tastes, so we shall subjoin a list of each compound below.†

Graining comprises the imitations of woods and marbles; the latter is distinguished by the term marbling; it is strictly an imitative art, and demands in its execution considerable judgment and good taste, united to a close observation of the peculiar characters of the different woods and marbles to be represented.‡ It is usually done on ground prepared for the purpose, the colour of which is varied according to the kind of wood or marble to be imitated. In putting in the soft shades or ground-work to marble imitations, care must be taken not to mix the colours together so as to give the work a muddy appearance, and the colours should be used as thin as will make the work sufficiently solid, or it will seem uneven when varnished.

* Green is, on the contrary, the softest of colours; the most permanently grateful, that which less fatigues the eyes, and on which they will longest and most willingly repose. Accordingly, nature has been profuse of green in the colouring of all plants; she has dyed in some sort of this colour, the greater part of the surface of the globe. Scarlet is the most offensive, or endurable for the shortest space of time. White is the next to scarlet; to flaming colours and white objects the eyes should not be often or long exposed. The poor untutored Indian when he traverses his native wilderness, while it is everywhere covered with snow, fixes before his eyes a wooden frame, which only permits the rays of light to pass through a very minute aperture. His view is thus confined, and his light small, but he preserves his sight from certain injury. A student at Cambridge, who sat daily for several hours in an apartment, the walls of which were white-washed, felt himself in a short time effected with dimness of sight: a fellow-student had the like occasion for complaint. Suspecting the strong light reflected from the walls to be the cause, they had their apartments coloured green, and their eyes then gradually regained their former strength. Scarlet window and bed-curtains are the worst that can be chosen, they contract a complaint which frequently follows in inflammation of the eyes, and is often irremediable. Looking very frequently at a fire, or on any very glaring object will have the same tendency.—(Author.)

† TINTED COLOURS.

Stone colour. White lead with a little burnt or raw umber and yellow ochre.

Grey stone colour. White lead and a little black.

Drab. White lead, with burnt umber and a little yellow ochre for a warm tint, and with raw umber and a little black for a green tint.

Pearl colour. White lead with black, and a little Prussian blue.

Sky blue. White lead with Prussian blue.

French grey. White lead with Prussian blue and a little lake. These last, used in various proportions, will make purple and lilacs of all shades.

Fawn colour. White lead with stone ochre, and a little vermilion or burnt stone ochre.

Buff. White lead and yellow ochre.

Cream colour. Same as the last, with more white.

Lemon colour. White lead with chrome yellow.

Orange colour. Orange lead, or chrome yellow and vermilion.

Peach colour. White lead, with either vermilion, Indian red, purple brown, or burnt stone ochre.

Gold colour. Crome yellow, with a little vermilion and white.

Violet colour. White lead with vermilion, blue and black.

Sage green. Prussian blue, raw umber, and yellow stone ochre with a little white, and thinned with boiled oil and a little turpentine.

Olive green. Raw umber, with Prussian blue thinned as before.

Pea green. White lead, with Brunswick green, or with Prussian blue and chrome yellow.

Chocolate colour. Spanish brown or Venetian red and black, thinned with boiled oil and a little turpentine.

Lead colour. White lead and black.

Plain opaque oak colour. White lead, with yellow ochre and burnt umber.

Plain opaque mahogany colour. Purple brown, and Venetian red, with a little black.

Black should be ground in boiled oil, and thinned with boiled oil and a little turpentine.

It will be obvious, that the proportions of the colours above mentioned must be determined by the particular tone of colour required.

‡ We have frequently observed in halls painted in imitation of marbles, that the stones are represented preposterously large, by the joints being made too far apart; now this large size of the stones diminishes the size of the hall. Small stones have a contrary effect, that of giving height, which is at all times to be desired.—(Author.)

Ornamental painting consists chiefly in painting scrolls, figures, or other enrichments, on plain work, so as to give them the appearance of relief or projection; it is most commonly done in the corners and margins of panels. The ornaments or enrichments to be painted are usually sketched first on paper, and the outlines are then pricked through with a needle point. This paper is to be laid on the wall or work on which the ornament is to be painted, and pounced over with a charcoal pounce-bag; the charcoal after passing through the small holes in the paper will leave a faint tracing of the outline of the ornament on the work, and serve as a guide to paint it by. The brushes used are camel or sable-hair pencils with long hair, and a rest-stick is held in the left hand to steady that of the right; also a palette to work the colours from the same, as is used by artists generally. If the colour of the ornament is to differ from that of the ground on which it is painted, the pounced outline should first be filled up, and when that is dry the shades are to be put in; but when the ornament is to be of the same colour as the ground, it will only be necessary to put in the shades by the assistance of the pounced outline. As soon as the first shades are dry they may be heightened, and a stronger relief given to the ornament.

DISSERTATION XLIII.

THE MODEL.

"It is easy to corrrect what is wrong in a model; it is not so in the house itself when built,—there it must remain to the disgrace of the architect."—*Essay on Design.*

The architect after he has made out his plans and elevations for the intended house, in which he has formed the apertures without and within with the greatest attention and circumspection, and so arranged the external openings that they shall admit good and sufficient light to the full extent of the rooms, without apparent injury, or impairing the strength of the fabric, and has also proportioned them in number and dimensions to the whole building, he may now apparently have satisfied himself and the proprietor. But he is further to consider that those drawings are only the surfaces of the building, and, that many of the parts of the elevation which now please his eye, may, perhaps, when the house is erected entirely disappear or fall back, occasioned by the projection of some parts intervening, while others recede; so that the proprietor may afterwards find himself to have been deceived, and is now dissatisfied. In the original drawing he saw the parts geometrically, but he now sees all perspectively. The elevations should therefore have been accompanied with a perspective drawing made from some chosen or general spot where it would be most seen, and then embellished with all its local scenery.*

A model in pasteboard, or one made of plaster of Paris, and coloured after nature, may be formed of the intended edifice, and laid before the employer. Where the house is to be extensive it will be needful, and this will no doubt be the more satisfactory; and though it will not embrace the scenery

* For a small building, the elevation of each front with a plan may indicate with sufficient correctness its ultimate advantages, but for a large mansion or public edifice of any description, consisting of many complex parts, the most certain way to prevent misunderstanding is to have a perfect model of the whole made by a regular scale. A model shows at once the bad points of a design, but in a perspective drawing, such as is usually made, the best aspect is chosen; every part disagreeable in the design is omitted, lowered, or concealed; everything calculated to make a picture is elevated and made prominent, (which perhaps in the erection will disappear,) irregularities are corrected, proportions are improved. Stone and brick, or cement receives from the colour box the same brilliant complexion. Thus, that which an ordinary judge has supposed would be grand, beautiful, or picturesque, afterwards turns out to be mean, abrupt in outline, and abounding in little unimportant parts, whereby the proprietor is grievously disappointed.—(Author.)

as a picture, yet if the model is placed on a stand, or on a proper elevation for inspection, it will show the actual effect that will be produced, as clearly as if the house was erected, and seen on the real site. The imagination of the proprietor is not to be misled or captivated by ornament in this little piece; its purpose is to show him the figure the house will assume when executed, and the intended division of the house within, which latter object may be done by two or three horizontal separations at the roof and the ceilings, which at those places may be taken apart whenever desired. The larger such a model is made the better, because the parts will be the better understood by an unexperienced eye, and as we advise perfect plainness in it, the expense will be trifling compared with the satisfaction that will be felt by the employer afterwards.

Where an outside view of the intended house is the chief consideration, a solid block model may be made, and fixed down on a large board, the separate elevations may then be drawn on paper, and pasted on the various sides; the ground may also be laid out and represented in the same manner: this will give all the effect of the edifice in miniature.

DISSERTATION XLIV.

ON STABLES AND COACH-HOUSES.

"Stables and coach-houses are picturesque appendages to a country house when designed with taste."—GILPIN.

All houses in the country of any consequence have stables and coach-houses, and more particularly gentlemen's seats; these should be detached, and at some moderate distance from the dwelling-house, and embosomed or concealed by trees, though parts of the building should be seen peering above the tops of the branches; which will show where the stables are situated, and at the same time give a picturesque effect to the home scenery. Stables and coach-houses should also be designed in the same style of architecture as that of the dwelling-house, and arranged with taste and judgment; the middle part of the building rising higher than the others, which are on each side. Such elevation is generally produced by the hay-loft that is over the stables. A turret with a clock should also be placed in the centre of the stables, which is not only a great ornament, but a convenience for the coachman and those engaged about the stables, as well as to those employed on the grounds within sound of the clock-bell. It also enhances the beauty and gives consequence to the mansion.

To small villas or suburban residences, where the ground will not admit of the coach-house and stables being placed at a distance, but connected with the residence, and where there are no large trees to hide them, these appendages should in that case be partially planted before or shut out, and the visible parts of the buildings subdued, or, in the painter's phrase, kept down, by some grey colour washed over them, such as Dorking lime and ivory-black mixed, this will take off the glaring intruding effect, and prevent their coming forward to offend the eye.

There have been some ingenious coach-houses and stables lately erected for Mr. Newman, a great liverystable-keeper in Regent's Street, London, well worthy of inspection. The area of the ground, (which is approached from an archway in Regent Street) is that of a square, three sides of which contain coach-houses below and stables above. The entrance to the square is on the fourth side near the street. Here, on each side, or immediately as you enter the area, there is an inclined road at the right hand, and another on the left, on which the horses ascend or walk up to passages

supported from below by iron pillars, between which pillars are the coach-houses, and the stables above,—the door to each being on the side of the passage. The whole interior area has the appearance of some extensive inn-yard, surrounded with coach-houses below, and lodging-rooms for passengers above, and not that of horses.

DISSERTATION XLV.

ON THE CHARACTER AND FORMS OF ENTRANCE-LODGES.

"Lodges give consequence to a country residence, and when the piers are surmounted with arms or crests, they point out to what family or sect they belong."—*Essay on Design.*

Park entrance-lodges to gentlemen's seats are generally attractive, by their being made either imposing, beautiful, or picturesque, where designed with taste and elegance. If the local scenery is in accordance with the mansion, and the road curves gracefully towards it, to produce deception as to the actual distance of the house, it has a more rural appearance: but it must be observed, that the lodge should always be in the same style of architecture as that of the dwelling-house, to be in accordance and worthy of being admired. Lodges may be considered as the offspring, the mansion itself the parent. Now nothing could be more absurd than that of a Gothic lodge to a Roman mansion, or a Tudor lodge to a Grecian villa; and yet with all this apparent inconsistency, such heterogeneous combinations are frequently to be met with, many of which we could point out in the county of Devon, were it not that it might make their owners dissatisfied with their injudicious choice. It is from a sight of the entrance-lodge also that we are to form an idea of the style of the architecture of the seat or dwelling-house to which the lodge belongs.*

To render those buildings attractive, they are generally formed of such parts as will make a bold projection or give a deep shadow, such as a projecting portico or porch on the plan, like that of the Greek cross, where some parts are thus seen, and others occasion a partial shade by the projecting centre. A porch in front, or a portico of four columns surmounted with a triangular pediment is of this description; and when in the rustic style, a colonnade or awning, formed with rough trunks of pollard trees, is introduced, overgrown and partially concealed by clusters of clematis and China roses, intermixed with honeysuckles, hanging in graceful festoons from the eaves and walls, will have a truly rural effect. The genteel gate to a plantation too, with its piers surmounted with the family crest of some rampant lion, eagle, or griffin, all enhance the consequence of the domain.

In lodges the polygonal figures may be adapted in the design with good effect; for proof of this we would refer to a double lodge on Hearne Hill near Dulwich, in the county of Surrey, where there is an open porch in front with three arches, and a gate on each side, of the most picturesque kind; it is situated some way back from the road, and is approached by a kind of vista, or avenue of overhanging trees from the neighbouring park, spreading their branches on each side, which in perspective dimi-

* The gate-house or park entrance, (now so frequently but injudiciously built to our country residences) was, during the Tudor period, designed rather to produce an agreeable and picturesque effect, than to accord with any fixed rules or customs of art beyond that of being in character with the dwelling-house to which it belonged, which was strictly observed. Such, indeed, was the practice towards the latter end of the sixteenth century, when it would appear, that, like the fashion of the present day, every man wished to display his taste and learning in architecture.—(R. B.)

nishes towards the lodge, and gives it a great distance. There trees, spreading their rude branches over the entrance, produce a very enchanting appearance. Here the trees are lofty, which still enhance the beauty of the scene, and give an idea of grandeur in respect to the house to which it leads.

The park entrance is still of a sublimer kind of architecture; being adapted for a nobleman's mansion and a large domain, these columnar facades should never be built but where they can well be seen from some public or high road, like that belonging to Lord Portsmouth in Hampshire, near Andover, or the more splendid one at Brentford, belonging to Sion House, a seat of the Duke of Northumberland, where the entrance is on the edge of the Great Western Road. As to its composition, there is, first, a lofty arch in the centre, with composite pilasters on each side, ornamenting a superstructure above, on which stands the figure of a lion, the crest of the noble duke. Branching to the right and left of this centre is a screen of columns or open colonnade, giving a view into the park. At each end of the colonnade are the lodges, surmounted with Egyptian sphynxes, which are rather an anomaly.*

The grounds of Sion House form a fine lawn, extending from Isleworth to Brentford. The park trees within the entrance are rich and luxuriant in foliage, hanging in massy grandeur, and the central gravel-walk running in a straight line from the park entrance, shows the perspective lessening in the distance. As noblemen's domains are supposed to be generally of large extent, the house should always be situated at a proportionate distance from the park-entrance; the walks should also be circuitous, which will still give them a greater extent and more importance.

DISSERTATION XLVI.

ON VENTILATING DWELLING-HOUSES.

"Ventilation is the art of renovating the air in the apartments of our dwelling-houses, and in all kinds of public buildings. We may exist for several days without food, but we die if deprived only for a few minutes of air."—Dr. Franklin.

As air is necessary to life without doors, so is pure air in our apartments to health; yet it appears that this important fact has nearly escaped the attention of the greater part of mankind, who are prone to blame the purveyor for the greater part of their complaints,† without reflecting upon the impure air they may have been inspiring at the rate of about two gallons per minute. The oxygen gas, or vital portion of the atmosphere that enters the lungs, is changed at each respiration into carbonic acid gas. This gas, as is well known, is poisonous if inspired alone, or even if a large proportion of it be mixed with the atmospheric air. But by an admirable provision of the Great Author of nature, this contaminated air is rendered specifically lighter than the pure atmosphere, from the heat it has derived from the lungs, and consequently rises above our heads during the short pause between each respiration; thus insuring to us always a pure draught of air, unless we prevent it by artificial means. It is not however always owing to a deficiency of oxygen, that the air of rooms

* This park entrance was designed and built by the Messrs. Adams, in 1762. Some time after, being much admired, an exact copy of it was formed in separate stones, and presented by the late Duke of Northumberland to John I., King of Portugal, and sent to Rio Janeiro; his Grace being at the whole expense of the freight, and of a person sent out to superintend the erection. It is fixed at Chacre, the country residence of the king, about three miles from Rio Janeiro.—(Moule's Counties.)

† There is no doubt that many diseases arise from an improper diet, and the modern fashion of culinary processes. It was an observation of Mr. Addison's, that, whenever he saw a luxurious table spread out, he imagined to himself there were diseases lurking among the dishes.—(Spectator.)

or crowded places becomes pernicious to health; certain gaseous and other vapours may be mixed with the air we breathe, without producing any very marked inconvenience; but the effects of a mixture of many other kinds are highly dangerous, and more quick in their actions than even those of animal miasmata.*

A constant renewal of air is absolutely necessary for its purity in our apartments, as well as without doors, as it is suffering either by its vital parts being absorbed, or by impure vapours being disengaged and dispersed through it.† Now ventilation, as it resolves itself into the securing a constant supply of fresh air, we shall in a note below state what is the quality of the vital air, or of what it is composed.‡ Dwellings constructed so as to impede a free circulation of air, will certainly condemn us to breathe an atmosphere laden with impure effluvia. No rooms can be well ventilated that have not an inlet and outlet for the air, and these apertures, from the superior density of foul air, should be made at the highest point,§ and so arranged as to diffuse the air that enters near the upper part of the room, and not inconvenience the persons within it, by descending upon them in a current. There should also be a chimney to every room, being a great ventilator, and which on no account should ever be stopped up with a chimney-board, which is too often the practice in bed-rooms.‖

We have observed also in many houses that the top sashes of windows of the upper rooms are

* Persons collected together and enclosed in a small space injure each other, not only by depriving the atmosphere of its respirable element, but particularly by altering its composition by the combination of all the substances inhaled from their bodies. These volatilized animal emanations become putrid while in the atmosphere, and conveyed to the lungs during respiration, become the source of the most fatal diseases.—(Richerand's Elements of Physiology.)

† It is evident that the air in the inside of a building may be unwholesome, as a quantity of humidity is continually and insensibly emitted from every mass or body which contains any principle of moisture. If a glass of cold water, for instance, or any other cold body, such as polished marble, is exposed in a room where many people are assembled, its walls will be covered with dew; and the stuccoed walls of a hall, and other walls where there are not constant fires, are also frequently covered with moisture. In the same manner this moisture in both cases is produced by the cold body condensing the vapours with which the air is charged from the breath and perspiration of the assembly. This may be seen on the walls and windows of a chapel commonly towards the evening; and similar to this is the night-dew on the inside of our windows, which in the winter season is frequently frozen, and assumes the form of fern-leaves, winter-trees, or crystallized tin of the most wonderful and intricates mazes.—(A.)

‡ Chemically considered, the atmospheric air, which was long regarded as a simple body, is compounded of about 0.27 of oxygen, 0.73 of azote, and of 0.01 or 0.02 of carbonic acid. The proportions of oxygen, according to Humboldt, vary from 0.23 to 0.29, that of azote is almost always the same; carbonic acid is the more abundant as the air is less pure. A dry and temperate air contains 0.27 of oxygen and 0.73 of azote, and free of other gases or other volatilized substances, is the fittest for respiration.—(R.)

§ There are two principles which operate to alter the state of air in any place where people are gathered together. One of them affects it physically, and to a change of density, and is the cause of draughts and influxes of cold air; the other affects it chemically, and to a change of quality as the medium by which the action of the lungs is rendered efficient to the preservation of life, and renders necessary, and, indeed, indispensable, the draughts and currents of which the first is the cause. The first of these occurs in every place in which air is heated, the other only in those places in which it undergoes respiration. Now, it is the first only of these that falls under our consideration, when investigating the principle on which draughts take place, and the course of operation of this principle is thus. If heat be communicated to a particle of air within a room, a change takes place with respect to that particle in the following manner: it becomes expanded and increased in bulk, in some such way as to be conceived by reference to the universal practice of holding a flaccid bladder before the fire to tighten and fill it up again, prior to using it as a foot-ball. By this expansion it is increased in bulk but not in weight, and in consequence rises from among the other particles, and ascends towards the ceiling in the same way that a bladder, filled with air, would rise through and swim at the top of others filled with water, if thrown on the sea together; and the only circumstance which caused this practice to be where it chanced to be at the time this supposed heating took place, was its gravity; the moment that becomes altered, and is consequently rendered specifically lighter than the surrounding particles, it ascends and passes through them towards the ceiling.—(Vallance.)

‖ The chimney is the principal ventilator of every room, the funnel of which consists of an aperture made in the wall for the passage or escape of the smoke up from a fireplace, and for producing a more perfect ventilation and supply of pure air into the apartments. The principle upon which the action of a chimney depends is, that the air in the chimney as it becomes rarefied its specific gravity is determined, and the weight of the column of air within the chimney becomes less than the weight of a column of the external air of the same altitude, the heated air in consequence escapes at the top of the chimney, and is replaced by the colder and denser air which enters at the bottom. The greater therefore the height of the chimney the greater will be the effect, for the greater will be the difference in the weight of the two columns of air.—(Tredgold.)

made fast; now if these were made to slide downwards instead of the lower sashes upwards, increased salubrity, as well as security, (especially in the case of children,) would be obtained.* In whatever way fresh air may be made to enter an apartment, it should be, so far as may be practicable, at the part remotest from the fireplace, in order that it may traverse the whole apartment in its passage to the chimney. The most effective species of ventilation is that in which nature is adopted as the guide. The simple action of the sun, no less than the devastating phenomenon of the African tornado, tends to the same result. We have only to change the temperature of the air which sur rounds us, and a new portion will rush in from the adjacent and purer parts to supply its place.† The fresh air comes into a room from the bottom of a door, as well as at the window, while the foul air goes out at the top.‡ A staircase in the middle of a house does not afford so good a ventilation through the interior as a staircase near the back wall, and one with a large Venetian window in it; for in the former much stagnant air will be confined in the middle of the house, especially if there is either a sky-light or dome-light over the stairs, for here it will be constantly retained. But those are very seldom adopted in the present day, being liable to admit the rain and snow from above, and get broken with hail-stones. The lantern-light now introduced is an improvement, from its not being liable to either of the foregoing objections; and windows may here be made to open on every side,§ according to the quarter of the wind.

Where the heads of sash-windows are brought very low down the walls from the ceiling, such rooms are constant receivers of stagnant or foul air, which can never escape. The new Buckingham Palace has those faults in most of the upper or attic rooms, where the windows look like the port-holes of a ship. Kitchens which are only ventilated at the top, not having windows in the walls for an ingress of fresh air to force out the rarefied, are badly constructed. Sir John Cullum, in his History of Hawstead, speaking of a kitchen of the middle ages, says, " Here windows are placed high above the floor, and that the reason for so elevating them was an opinion which then prevailed,

* Sashes in dwelling-houses are at all times best to be double hung for the purpose of ventilation, as fresh air rushes in at the bottom sash, and foul air escapes at the top; therefore to ventilate rooms in a morning, the top sash should be drawn partly down and the bottom partly up. We hope in future, that in all inhabited houses, whether private or public, the practice of fixing the upper sash will be abandoned, from the conviction that fevers may be not unfrequently generated, or increased in our apartments from the want of this precaution.—(Author.)

† The reason why draughts are experienced from the crevices of doors, is the heated air in the room being lighter than the external, which presses inwards to make up for what passes off by the chimney; fresh air flows in at the bottom of the building, and when the weather is cold enough to make us shut the doors and windows, ingress by a duct equal to that of egress is prevented, to make up by the rate at which it enters, for the difference in the sizes of the apertures of admission and emission; the air that finds its way through cracks and crevices, enters with so great a velocity as to cause the chilling currents we experience.

Now this is what takes places in all dwelling-houses, and as owing to the doors and windows being, during cold weather, kept shut, the aperture of admission (or channel by which the external air enters the house) is rendered very much smaller than that of emission: to make up the difference thus caused between the apertures of admission and emission, the cold external air is obliged to make use of all the cracks and crevices that are about either the doors and windows, or elsewhere around the house, and to introduce itself through them with a velocity so much greater than that at which it passed off by the ventilators, as will make up for the difference between the sizes of the cracks and crevices by which it enters and that of the disproportionate apertures.—(Vallance.)

‡ The truth of this may be proved by placing a lighted candle at the bottom of a doorway, (where the door is open into a room from a passage,) and at the same time holding another lighted candle at the top of the same aperture; it will then be instantly seen that the pressure of the fresh air at the bottom of the doorway on the flame of the candle will be impelled inwards, and that by the contrary pressure of the foul air making its escape at the top, will impel the flame of the upper candle outwards. What is the earth's atmosphere but a great doorway in the vast system of the universe, according to the rarefaction of the air at different degrees of elevation? on this account we see the clouds passing in different directions. —(Author.)

§ We have seen the very bad effects of confined air in the inside of the houses in certain Cantons of Switzerland. Here, though the sallowness of complexion so often visible in their countenances, might in part be caused by the stoves with which their low and small apartments are furnished, yet it is further increased by their habits of never opening their windows, whence the glass is stained with every colour of the rainbow from the effluvia of the breath constantly acting on it without any admission of fresh air.—(Carne's Letters from Switzerland.)

that they ventilated the apartments better, when open, than low ones, and that when shut the air admitted was less felt." But, say the French experimentalists, from the great rarefaction of the air in such apartments, vapours and particles discharged from stewing-stoves will not rise to the ceiling, and, if not carried off by apertures a few feet above the level of the stoves, will hover about for a time and then descend. In conclusion, we have only to observe, that, to avoid draughts and get ventilation in a house properly, has hitherto been found a difficult accomplishment.

DISSERTATION XLVII.

ON WARMING DWELLING-HOUSES.

"If we could always keep in one temperature of warmth, we should always keep in health."—DEAN SWIFT.

"Calorification, or the throwing out of animal heat, like nutrition, takes place at all times, and may be considered as belonging to all organs. It is of the utmost consequence, that the internal temperature of the human body should be nearly the same at all times, which is habitually of a temperature of between thirty-two and thirty-four degrees of Reaumur's thermometer, with the same degrees of warmth under the frozen climate of the polar region as under the burning atmosphere of the torid zone, during the most severe winters and the hottest summers."—RICHERAND'S *Elements of Physiology*. Translated from the French, p. 202.

Man is everywhere indigenous, and exists in all climates, while the plants and animals of the equator languish and die when conveyed to the polar regions. From the flexibility of his nature man enjoys the power of adapting himself to the most opposite situations, and of establishing between them and himself relations compatible with the preservation of life. Nevertheless it is not without difficulty that he undergoes these changes, and accustoms himself to new impressions.* The influence of climate on the human body is not shown by the mere occasioning of epidemic diseases, neither does the consideration of it lead to the establishing what physicians call *medical constitutions*, but the influence of a sudden change operating on man in health as well as in sickness. Thus, as most people know, a profuse perspiration is brought on by passing from the heat of the sun immediately into the shade. There is no doubt that partial chills, or cold, or obstruction of perspiration, are generally the first sources of illness, and that we are more frequently seized with them while in the house than when we are abroad in the open air, and while we are passing from one room to another of a different degree of temperature. How often in the winter season do we find this to be the case, and even while a person is sitting before the fire that he is chilled with cold at his back when he is scorched by the fire in front! Now this is particularly observable in a sitting-parlour, where the door is situated in a direct line behind us and opposite to the fireplace, and opens from a passage, for it is the nature of cold air to rush towards that which is hot.

As all natural substances decay quicker by being alternately wet and dry, so do our bodies by frequent exposure to changes of temperature of hot and cold: thus we see it is of the utmost importance that our dwelling-houses should be properly warmed in the winter season, either by calori ferous stoves, hot-air tubes, or by a steam apparatus, the latter of which is decidedly the most beneficial for health. The brazier, though very injurious to health, arising from the charcoal burnt in

* Even the periodical return of the seasons in our own country, determines that of certain derangements to which the animal economy is subject. The same diseases manifest themselves under the influence of the same temperature, and, to use an ingenious comparison, resemble those birds of passage which visit us at stated seasons of the year. Thus hemorrhages and eruptive affections come on with the return of the spring; summer comes attended by bilious fevers; autumn brings on a return of dysenteric affections, and winter abounds in inflammation of the lungs and other parts.—(Author.)

it, seems to have been employed at a very early period in the East.* The means of conveying hot air, by pipes, into different rooms before the invention of chimneys, we find, were adopted by the Romans during the empire.† Among the principal objects in apartments in Russia at the present period is the stove, which consists of four walls of brick, covered outside with white or painted tiles, rising to a height of five or six feet, whereby the air of the whole room is equally heated, no fire being seen. In the winter every house is fitted with double or additional windows, to exclude the external air, so that in the severest winter, thermometers in dwelling-houses usually stand at sixty degrees of Fahrenheit. Warming by steam, which is the most beneficial to health, is of modern invention.

The modes adopted in some other countries of heating rooms in the winter season, having been stated, we shall now turn our attention to England, where we find the same mode of warming the houses as that practised by the Romans during the empire; namely, that of passing hot air through pipes; with this difference of material, the Romans having used earthenware for pipes, whereas in England cast-iron is adopted. But, as we have observed, this mode of heating houses is very objectionable, as it scorches and destroys much of that vital air which we breathe. We shall therefore proceed to describe the apparatus necessarily required for warming houses by hot water or steam, passing through pipes, which is at all times to be preferred. Perkins's apparatus,‡ consists of a continuous or endless tube, closed in all parts, a portion of which is coiled and placed within a duly-proportioned furnace; from this coil the rest of the apparatus receives its heat by the circulation of the hot water flowing from its upper part, and which, cooling in its progress through the building, returns into the lowest part of the coil to be reheated. The expansion of the water,§

* Before the invention of funnel-walls or chimney-flues, was that of the brazier, in which charred wood was burnt: the earliest account we have is that recorded in Holy Writ by the prophet Jeremiah, xxxvi. 22. He says, that Jehoiakim, the King of Judah, when he called the princes together on a particular occasion, (B.C. 605) sat in his winter-house, and that there was a fire on the hearth burning before him. Now the proper translation, generally admitted, should be, "There was set before him a hearth with burning coals." The word rendered a hearth may mean anything in which a fire was placed, without determining that it was the hearth of a chimney; and that it was not such, but a movable brazier or firepan, will appear from the turn of the original, lost in the common translation, which says, not that the king was sitting before the fire on the hearth, "but that the hearth" containing the fire was brought or set before the king. This is corroborated by the existing usages, as well as by those which anciently prevailed.

Though chimneys are found in some parts of Asia, as in the north of Persia, yet, generally, apartments are warmed in cold weather by means of pans or braziers of various kinds, and either of metal or earthenware, which are set in the middle of the room after the fire or gas of wood, which it contains, has been allowed to burn for some time in the open air, till the flame and smoke have passed away. Wood previously charred is also employed for this purpose. The fire is comparatively left open in the apartment, as was clearly the case in the present instance; but in Western Asia, when the inmates wish to sit comfortably warm in their rooms, they often cover the brazier with a low table, over which is laid a carpet or thickly-padded counterpane, of such ample dimensions that the parts which overlay the table can be drawn over the persons as they sit or recline upon their sofas or cushions, which are arranged properly around the centre of warmth. They usually sit covered to the waist by the counterpane, which they themselves draw up to their shoulders, and they present an appearance which would suggest the idea of a family sitting up in a large bed, with their feet turned towards a common centre. The quilt, with the surrounding cushions, of course, detaining much warmth around the persons; but the plan appears unwholesome, and could only exist among an indolent people, who have no in-door occupations.—(Letters from the East.)

† Diocletian's Palace at Dalmatia, which was erected about a century after that of Nero's, was warmed by hot air passing through pipes: thus Gibbon observes of the public and private halls and rooms of this period—"The form of the Atrium, the Basilica, the Cyzicene, Corinthian and Egyptian halls, bed-rooms, &c. were all various in form, and their proportions correct; but they were all attended with two imperfections, very repugnant to our modern notions of taste and convenience, for the rooms had neither side windows nor chimneys. They were lighted from the top, and received the heat by the help of pipes that were conveyed along the walls.—(Gibbon's Fall of the Roman Empire, c. xiii.)

‡ Mr. Perkins is an American, and one of the most ingenious engineers in this country, having several times been rewarded for his inventions by the Society for the Encouragement of Arts, Manufactures, and Commerce.—(Author.)

§ Water was at one time supposed to be a solid body, it is now found to consist of a number of bubbles filled with air; to prove this, take a wine-glass and fill it to the brim with cold water, which being done, fourteen shillings of silver may then be dropped into the water, the edge being placed downwards, before the water will actually run over the glass. Of heated water, its property is to ascend in bubbles; the steam rising up the pipes is therefore contrived for warming houses, the same passing in a level or undulating direction, and then descending it becomes cold or condensed when near the bottom of the boiler, where it enters and again becomes rarefied and ascends into the pipes as before, in continued succession.—(B.)

when heated, is fully provided for by an expansion-tube, which is of three inches diameter, and of sufficient length to afford an expansion space of from fifteen to twenty per cent.; this, as long practice has proved, is ample for the greatest heat which can be attained by the water, as it expands only five per cent. from forty degrees, its point of greatest density, to two hundred and twelve degrees, the boiling point. This tube is placed at the highest part of the apparatus, and is empty when the water is cold. The furnace is provided with a damper, by which the fire may be regulated at pleasure: in a well-managed apparatus this damper is in general nearly closed after the fire has become well ignited, and the draught is so regulated that little more than a smouldering fire is kept up, which at once economises fuel and prevents the possibility of the pipes being overheated. The degree to which the damper should be closed depends entirely upon the goodness of the draught, and a very few days', even a few hours' experience will show the person in charge of the apparatus the point at which it is desirable to keep it. To most of the apparatuses recently erected by the patentee, a self-regulating damper has been attached, acting from the expansion and contraction of the pipe; when this becomes heated beyond any given point to which the damper has been previously regulated, the elongation of the pipe by the excess of heat acting upon the handle of the damper, partially closes it; the draught is thus checked, and the fire lowered; the pipe consequently cools, and in cooling contracts, the contraction again opens the damper, and the fire is revived. By this action of the self-regulating damper, any degree of heat from the pipes may be maintained within a few degrees: if the damper be so fixed as to work the apparatus at two hundred and fifty degrees, it will be found that the heat of the pipes will range between two hundred and fifty-five degrees and two hundred and forty-five degrees, whatever quantity of fuel may be thrown upon the fire; thus again the overheating of the pipes is effectually prevented, and an equal temperature at the same time obtained.

In the arrangement and fixing of any apparatus, regard ought always to be had (as has been already stated) to the due proportions of grate surface, heating surface, conducting and radiating surface, and draught; and where these have been duly observed accident becomes impossible, even if the damper should be left wide open. It is not deemed necessary here to state the proportions the above surfaces should bear to each other, but their necessity is sufficiently obvious. It is the duty of every tradesman who undertakes to erect these apparatuses to understand them; and to such a one, what has been said presents no difficulties; and merely common care and the usual degree of prudence required from every person attending upon fires may reasonably be asked for, in the management of a hot-water apparatus. The mode adopted by Mr. Perkins, an engineer of London, for warming the reading-rooms at the British Museum (which accords with the above description) cannot be too much praised: the perforated air-stoves there set up are very ornamental, and contain screw-pipes for the admission of the steam; and perforations for the emission of the heat, which in the winter season is most congenially dispersed over those extensive apartments.*

* DESCRIPTION OF A HOT-WATER APPARATUS ERECTED BY MESSRS. COLDRIDGE AND SONS, IRON FOUNDERS, EXETER, FOR HEATING ST. JAMES'S CHURCH IN THAT CITY.

Within the floor of the aisles of the church is laid five hundred feet of cast-iron water-pipe, three inches external diameter, communicating with a boiler fixed in a sunk area outside, over which is a shed, in one of the recessed angles at the east end of the edifice. The boiler is in the form of a long cylinder, about six feet six inches in height, by eighteen inches diameter; it has a spiral flue from bottom to top, in which are sundry flues for cleaning out the soot. A double valve is placed at each extremity of the pipe for the purpose of controlling the heat, or of stopping the circulation when required; there is also an open cylinder, with a floating index to facilitate the escape of air, and to show the elevation of the water in the boiler.

When the machine is set to work, the valves are shut until the water boils; the pipes are then opened, and the immense

perpendicular column of rarefied particles are propelled forward with inconceivable rapidity, and the whole line of pipe attains a high degree of temperature in a few minutes, and, in less than an hour, arrives at its maximum of heat. The action is so powerful that the atmosphere in the building is speedily warmed to any temperature required, and should it be too hot, the circulation can be instantly stopped by means of the valves, and the temperature lowered to any point required.

This mode of heating is also applicable to dwelling-houses, any floor of which may be warmed by a boiler being placed in a remote corner of the basement story of the building, the pipes above in each floor being concealed behind the skirting, where the heat would escape through an open iron ornamental fret work, or foliage ornament, placed along the top of the skirting or place of the moulding, which produces a very beautiful and pleasing finish.

The superior advantage of this apparatus appears to consist chiefly in the boiler, an original invention of Mr. Coldridge's. It is customary with many manufacturers to use boilers of small dimensions, which are capable of absorbing but a very small part of the heat generated in the combustion of the fuel; consequently the greater part of the heat is carried up the chimney and expended to no purpose. To set this in a clear point of view, it may be necessary to observe, that as an equal quantity of cooled particles will be brought back by the returning pipe, as there were hot particles set in motion by the leading pipe; it follows, that in a boiler of very small dimensions, these cooled particles would occupy nearly the whole external surface, and would require to be re-heated at every successive circulation; whereas in the cylinder boiler, above described, these particles would occupy but a small space at the bottom, while the water above, being already heated, the circulation would proceed with greater rapidity. In other words, if the boiler be large, the particles of water would be heated with more rapidity than they could possibly circulate through the area of the pipe, and the result would be, that a surplus quantity of heated water would be retained in the boiler until the whole quantity in the boiler had attained a high degree of temperature, in which case the quantity of cooled particles brought back by the returning pipe would have but little effect in lowering the temperature of the whole mass, whilst the hot particles at the upper surface of the boiler would keep up the circulation without interruption, and the contrast of the temperatures between the leading and returning pipes, (on which the action depends,) would be consequently greater, or in the ratio of the difference between the proportions of a small boiler and a large one.

Some boilers have one pipe only, others two, for the ascending steam, which latter is the most consistent. We have seen some with three, and those of the most enormous and unnecessary size, seeming to have been made without any calculation as to the quantity of heat the pipes would convey. Note. Each steam-apparatus contains but one descending or condensing water-pipe, which enters at or near the bottom of the boiler, while the steam-pipes are always at the top.—(Author.)

ILLUSTRATIONS.

THE

ELEMENTARY DIAGRAMS OF DESIGN,

AND EXEMPLARS OF

THE VARIOUS STYLES OF DOMESTIC ARCHITECTURE

DISPLAYED AND DEFINED;

INCLUDING

THE APPROPRIATE FURNITURE,

GARDEN,

AND LANDSCAPE SCENERY OF EACH.

ELEMENTS OF DESIGN, FIRST PRINCIPLE.

PLATE I.

SEAT. I.

A SQUARE.

SEAT. II.

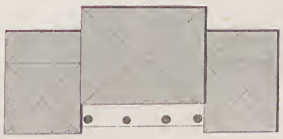
A PARALLELOGRAM.

SEAT. III.

SQUARE PROJECTION IN THE CENTRE.

SEAT. IV.

CIRCULAR BOW IN THE CENTRE.



SEAT. V.

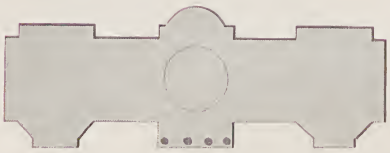
CENTRE AND TWO SIDE WINGS.

SEAT. VI.

CENTRE AND TWO SIDE BOWS.

SEAT. VII.

CENTRE AND TWO SQUARE PROJECTIONS.



SEAT. VIII.

PORTICO AND TWO POLYGONAL BAYS.

F. Brown, Arch.

Engraved by J. Rogers.

LONDON, PUBLISHED BY GEO. VIRTUE, 26 IVY LANE.

THE

THEORY OF PLANS.

PLATE I.

ELEMENTS OF DESIGN, FIRST PRINCIPLE.

"As domestic dwelling-houses are composed of various compact masses circumscribed by lines, and the beauty of all edifices depend on their constituent parts, it is worth inquiry, whether a perfect principle cannot be laid down, which will direct the architect in the invention of beautiful forms."—*Essay on Design.*

The subjoined plate embraces the seats or outlineal plans which dwelling-houses would assume on the ground, from the simple, to the complex forms. This is the first thing generally to be considered and determined on, although the corresponding block elevations should at the same time be conceived in the mind's eye, in conjunction with the ground seat. When a single building is composed either of a cube or a parallelopiped, it is termed a simple form; but when it is composed of a union of cubes, polygons, and circular parts mixed, it is said to be composed of complex forms. SEAT I., for example, is intended for a square house,—a form usually adopted for small suburban residences. SEAT II. is a parallelogram in the form of the Greek temples, which, when accompanied with columns, is sublime; but when applied simply to a dwelling-house, the parallelogram is of an uninteresting character.*

* Note. Those simple figures composed of straight lines and right angles are more easy and convenient to arrange than any other, and there is certainly none that admits of a better distribution of light. A perfect square for a plan is a figure on which a very neat house may therefore be constructed. The cube, as an elevation, too, is a form very general, on account of its simplicity and ease; much adopted by the country builders, but an oblong for a plan is preferable, and the parallelopiped elevation, when ornamented, much better than the cube. It admits also of more variety in the inner division, and has every convenience of the other with those additional advantages. Thus we consider the pallalelogram as an advance on the cube, and as the second in order of design. The parallelogram will admit of many schemes or divisions in the architect's first sketch, and as we have in general observed, he is to keep in mind both the inner divisions as to convenience, and the outward form as to appearance; and there is one more consideration needful, that is, the proportional height of the building. In forming the proportion of length and depth the height is also to be an essential consideration, (which we have shown in Plate II.) and never should be overlooked; for assuredly there is a determined point for the height as well as for the length and breadth to make the plan pleasing and harmonious, which, if brought below that point, the building will appear flat, and if carried above it will then be considered preposterous. What is the best height then in respect to the length and breadth of a house where the plan is rectangular? is the surest inquiry, and for this our architectural writers have never yet established an absolute rule.

As to the plan, a very good and safe rule may be adopted in practice, by making the length one-third more than the breadth; but to tie the architect down to this formality, would be to cut him off from the opportunity of introducing variety, which we look for in a pleasing building. It is better to make the length in general less, than to let it exceed this proportion; but for this there is no absolute rule, and there is no fear of running into extremes either way; for a good eye will always be able to discover the medium between a too narrow and that of an excessive length.

Nature has taught mankind, that in music there are certain rules for modulation, or, if I may so express it, proportioning sounds. So in architecture, there are certain rules dependent on those proportions, or, at least, such proportions as are

No beauty can be given to a house externally without a diversity of parts, so as to produce light and shadow; to do this, projecting and receding parts must therefore be formed and laid down in the plan. SEAT III. is the first deviation from a plain plan, and which represents the seat of a small villa with a square projection in the centre of the front, and in the rear a projection extended back to contain the servants' offices. SEAT IV. is a small detached house with a segmental bow in the centre of the front towards the garden, and a square projection at the entrance elevation. This, at all times makes a neat and pretty house. SEAT V. is the plan of a rural residence, with two wings attached, the front receding for an awning. This plan is very convenient for a small villa, and would assume a picturesque appearance when erected, as the centre division is intended to rise two stories high and the wings but one. SEAT VI. The plan of a detached house with two segmental bows in front and two square projections on the back. This plan would make a very genteel house as well as being airy and healthful, and admit of being made very commodious. SEAT VII. The outlined ground-plan of a public building where greater extent of room for offices is required. This intended edifice consists of a bay-window on the postern front. SEAT VIII. shows an outline ground-plan for a Roman country mansion, with a portico surmounted with a pediment, and dome over the hall, and two projecting polygonal bay windows at the extreme ends, and three projections on the back elevation, in the centre of which is a bow; more variety being here sometimes required to harmonize with the surrounding country, such as upland scenery, group of trees for a rookery, and other objects of interest.

There are three grand essential points to be considered in the structure and form of an architectural edifice;—three leading principles, which not only originate the elements of design, but which to a great degree have generated all the subsequent combinations. This influence extends not merely to the association of convenience, equilibrium, and strength; but, as will appear, has suggested the system of ornamental decoration. These master dispositions it thus becomes necessary to bear along with the material of architecture; as well as that of climate.

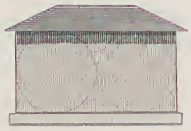
The purpose for which any building was erected or the use it was contemplated to serve, would necessarily determine the magnitude, and, to a certain extent, the forms, which may be numerous; I have therefore here given the most general figures or outlines of plans, that present themselves to our notice, for detached rural residences or villas, and mansions; progressing from the simple cottage *ornée* even to the splendid palace. Forms however might have been given *ad libitum*, such as the Greek and Latin crosses, applicable to entrance-lodges; irregular and compound picturesque figures for parsonage-houses, and polygonal ones for gardener's residence, sporting-lodges, &c., but this would be

in arithmetical harmony of numbers, and those I take to be dependent on nature. The square in geometry. the unison or circle in music, and the cube in building, have all a simple and inseparable proportion; the parts being equal, and the sides and angles the same, give the eye and ear an agreeable sensation of pleasure. From hence may likewise be deduced the cube and half, the double cube or parallelopiped, the diapason and diaperte; being all founded on the same principle in music, from which may be considered likewise the subduple proportion. We are to observe, that even a building of one thousand feet long may have the same proportion by breaking forward for the centre, and sinking back for the diapason, and changing the same line to a diaperte, which mixture of proportional parts will make the whole agreeable; but the architect must have the same nice eye in designing as the musician has an ear for music, as the latter introduces grace notes where the sound would otherwise be harsh or flat; so the former must add ornamental parts where there would otherwise be abrupt terminations and a monotony of parts.

If any of the following proportions be adopted, it must be observed, that the cube should never exceed fifty feet; the cube and a half not beyond sixty feet front, nor the double cube be more than eighty feet. If the cube be fifty feet front, consequently the depth and height will be the same. If the cube and a half of the front be sixty feet, the depth will be forty. The double cube of sixty feet front, will be thirty feet deep and thirty feet high. This, which is called a double cube in building, is only the placing of two cubes together *in plano*. The arithmetical proportions flow in the same progressive manner, and are to be made use of as necessity requires.—(Architectus.)

BLOCK I.

A CUBE.

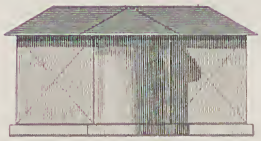


BLOCK II.

A PARALLELOPIPED.

BLOCK III.

SQUARE PROJECTION IN THE CENTRE.



BLOCK IV.

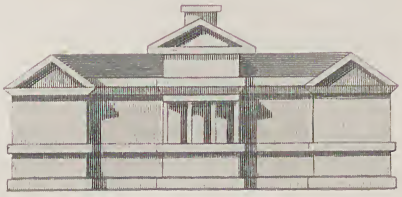
CIRCULAR BOW IN THE CENTRE.

BLOCK V.

CENTRE AND TWO SIDE WINGS.

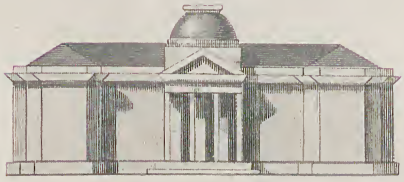
BLOCK VI.

CENTRE AND TWO SIDE BOWS.



BLOCK VII.

CENTRE AND TWO END PROJECTIONS.



BLOCK VIII.

PORTICO AND TWO POLYGONAL BAYS.

R. Brown, del.

Engraved by J. Rogers.

LONDON, PUBLISHED BY CHAS. TILT, 86 FLEET STREET.

merely an extension or ramification of the principles already laid down. To extend this principle to every class and character of buildings would therefore be endless and useless, as sufficient has here been given to call into exercise the inventive powers, and to show that those first principles may be carried into an infinite variety of form as a fine fancy may dictate, or particular situations harmoniously suggest—a principle always to be kept in view when the architect is designing a house for an already chosen spot.

THEORY OF ELEVATIONS.

PLATE II.

ELEMENTS OF DESIGN, SECOND PRINCIPLE.

"An edifice when it strikes the eye of the beholder at a distance, is judged of by the masses, as to its form, figure, and effect. The decorative parts are of a secondary import and consideration, and for the near point of view."—*Essay on Design.*

The objects on this plate show the appearance of the former seats on Plate I. constructed in blocks, being the second principle, or first of the Theory of Elevations of Dwelling-Houses in the mass, or general outline appearance, which character must be one of the same consideration to the designer as well as the plans: the windows and doors are of a secondary import. Block Elevation I. represents a cubic outline, with a roof heaped in at each end; or the same may be finished with two gables; but which would not look so compact as when heaped. Block Elevation II. is a parallelopiped, as before observed, being a house of the most common form, with a heaped roof, and one of common span. Block Elevation III. is a house of the above description, with a square projection in the centre, and finished with a pediment; the roof, as before, is heaped at the ends. Block Elevation IV. A house with a circular bow in the centre, and a projecting roof around the walls, in the English manner. The bow sloped into the roof as well as the roof itself, being heaped in at the two ends. As it is necessary in producing beauty in buildings, that there should be breaks in the plan; so here, to give picturesque effect, the masses in the elevations should rise of unequal heights. To obtain this, Block Elevation V. shows a cottage villa with a receding centre and two projecting wings, roofed and heaped at the ends, the centre building rising above the wings, having a pediment at each end, and a Tuscan roof which produces a picturesque effect. Block Elevation VI. A house with two circular bows, carried up to the height of the first floor, or string-course, the crowning-cornice above extending along the building. Block Elevation VII. A municipal or public building, with a centre projection, and one at each end; the centre has a pediment, and cornice above the upper portico, extending around the edifice, and the roofs are heaped. Block Elevation VIII. A Roman mansion with a portico at the centre entrance, surmounted with a pediment, and over the middle of the edifice crowned with a hemisphere dome. At the ends of the mansion are two polygonal bay-windows.*

* The polygonal figures are numerous, as the term applies; to any object containing more than four sides, their angles are always obtuse, and they increase in obliquity according to the increased number of the sides of the figure. Two of these geometrical polygons are, however, more generally adopted than the others, namely, that of the hexagon, a figure of six sides, and the other the octagon, a figure of eight sides. In constructing the first—

"The bee, observe;
She too an artist is, and laughs at man,
Who calls on rules, the sightly hexagon,

This edifice being intended for a manor-house where there may be a rookery adjoining, the summit has been more studied, which by the varied heights, will produce a grand outline and a noble effect of light and shadow.

I have now given or gone through progressively the most general forms of elevations of houses, corresponding to the previous seats in PLATE I. Although it is plain the summits or outline against the sky are not to be confined to one general contour, but that they will admit of being more varied, and other effects produced, according to local or existing circumstances, as well as to the taste of the designer. However, the general outline of the house must at all times be composed to accord with the peculiar scenery, thereby producing in the house a pleasing picture, as well as attracting the attention of the tasteful visitor.

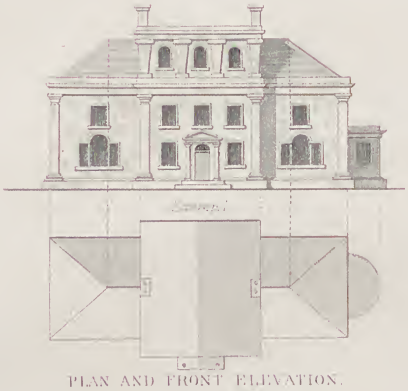
We shall here inquire into the effect produced by forms on the imagination; now all the separate masses in edifices are intended either for a useful purpose or to be ornamented, or both. The beauty of ornamental forms are considered to arise from three sources: first, from the expression of the form itself; secondly, from the expression of fitness in the design; and, thirdly, from accidental expression. The strongest, and most permanent or lasting emotion on the mind, we receive from the first, that is, the form itself: that of the second, from the design itself, is not so strong nor lasting, and those which accidental associations produce, vanish often with the year which gave them birth; accidental expression or fashion vary with the caprice of mankind: expression of design varies with every period of art. The beauty which arises from the expression of form itself is alone perma-

> With truth to form; a cunning architect,
> That at the roof begins her golden work,
> And builds without foundation."—(Hurdis.)

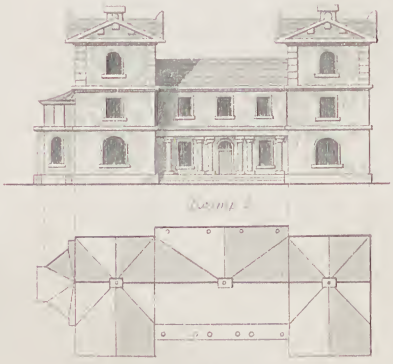
If the external appearance of the house was all the architect had to consider when making his plan, any one of these figures would recommend themselves to his choice from their variety and beauty; but we have already observed, that, in drawing the outline of an elevation, the architect must have the idea of the inner divisions also under his consideration, which will show us how vague and improper it is to recommend these figures exclusively, merely for the sake of variety, as some have done. Neither are they required or proper in all buildings; for in those where grandeur should strike us most, much variety would destroy the effect by the multitude of angles, like drapery cut up by too many folds would, on the back of a judge, detract from his dignity. It is the picturesque buildings alone which require such diversity of parts.

As to the pentagon, a figure of five sides, this is liable to the greatest objections in relation to the inner divisions, and will always entail more trouble upon the architect. But with all this it is one of the most useful in military architecture, where the salient angles serve for defence and their sides for curtains. Yet, as I have said, it is incommodious in the greatest degree for a dwelling-house built for the convenience of a family. This does not apply to ornamental buildings for pleasure-grounds; for at Powderham Castle in Devonshire there is a noble belvidere erected on a high mount, of a triangular plan, with hexagonal towers on the three angles, each rising above the middle structure: these towers contain the stairs which lead to the summit.

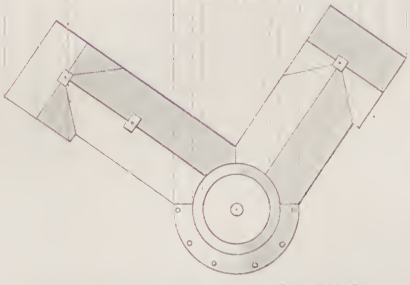
The celebrated John de Groat's house in Scotland, was octagonal, and the occasion of its construction singular: we shall therefore describe it. In the reign of James IV. of Scotland, three brothers, Malcolm, Gavin, and John de Groat, supposed to have been originally from Holland, arrived in Caithness, with a letter from that prince, recommending them to the countenance and protection of his loving subjects in the county of Caithness. These brothers bought some land near Dungess Bay-head, and in a short time, by the increase of their families, eight different proprietors of the name of Groat possessed these lands in equal divisions. These eight families having lived peaceably and comfortably for a number of years, established an annual meeting to celebrate the anniversary of the arrival of their ancestors on the coast. In the course of the festivity on one of these occasions, a question arose respecting the right of taking the door, the head of the table, and such points of precedency; each contending for the superiority and chieftainship, which increased to such a degree as would probably have proved fatal in its consequences, had not John de Groat, who appears to have acquired great knowledge of mankind, interfered. He expatiated on the comfort they had hitherto enjoyed, owing to the harmony which had existed between them; he assured them, that, as soon as they appeared to quarrel amongst themselves, their neighbours, who had till then treated them with respect, would fall upon them and expel them the country; he therefore conjured them by the ties of blood and their mutual safety, to return quietly to their several houses, and pledged himself that he would satisfy them on all points of precedency, and prevent the possibility of such disputes in future at their anniversary meetings: they all acquiesced, and departed in peace. In due time John de Groat, to fulfil his agreement, built a room distant from all other houses, in an octagon figure, with eight doors, and placed a table of oak of the same shape in the middle: when the next meeting took place he desired each of them to enter by his own door, and to sit at the head of the table—he himself occupied the last. By this ingenious contrivance the harmony and good humour of the company were restored. The building was then named John o' Groat's House. Nothing now remains but the foundations of the building; the place still retains the name.—(History of Scotland.)



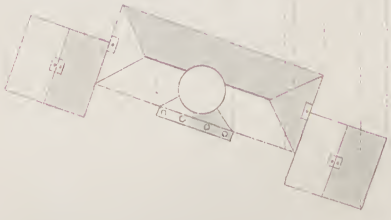
PLAN AND FRONT ELEVATION.



PLAN AND FRONT ELEVATION.



PLAN AND ANGULAR ELEVATION.

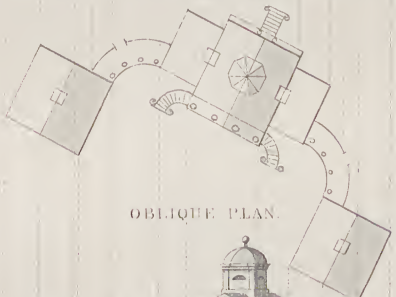


PLAN AND OBLIQUE ELEVATION.

BACK ELEVATION.

BACK ELEVATION.

OBLIQUE PLAN.



OBLIQUE PLAN.

FRONT ELEVATION.

FRONT ELEVATION

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nent. To unite the different kinds of beauty, also to dignify ornamental forms by use, and convert merely useful forms into beauty, is the greatest object of ambition among every class of artists and architects.*

FINISHED ELEVATIONS.

PLATE III.

ELEMENTS OF DESIGN, THIRD PRINCIPLE.

"In all designs there is more or less uniformity and regularity: whenever in any form, we observe this quality, we immediately infer Design. In every other form, on the contrary, where we discover actual want of this quality, we are disposed to consider it as the production of chance, or of some power which has operated without thought or invention. Hence regularity expresses design, and art, for nothing regular was ever the work of chance."—GILPIN *on Picturesque Beauty.*

The figures which the architect has to regard in forming a plan or elevation are of two kinds, angular and circular. Under each of these heads there is a great and infinite variety, that may be admitted into all public buildings of a noble and ornamental character; but then only in a limited number in those which are intended for the reception of a family. Though these are to be judiciously combined, yet it is certain we observe a sameness in many residences, which detract from their merit. Now before the architect attempts the several modes by which buildings may be varied, let him understand those useful parts of the edifice, which cannot fail from recommending all the geometrical figures to his notice. We have shown, as to polygonal plans, that, where they are to be simply adopted as an entire dwelling-house, they are most improper, not having ascertained this upon mere dates of opinion, but by giving the plainest reasons for their rejection.†

* As all architectural objects are circumscribed by lines, we shall in this place state the nature of the effect which these lines produce in different positions, as well as that of curves of contrary flexure, both on the plan and in the elevation. This, I believe, will lead us to some decided principle in designing, so as to produce the required character of expression in every edifice.

Horizontal lines produce grandeur, as we see by the Greek temples; and when they are extended to any great length—vastness; this appears in the parapet walls of level bridges across wide rivers.

Vertical lines, as we see in the uninterrupted angles of high houses, give an idea of strength and stability, and when carried up to any great altitude, as in church towers—a solemnity.

Inclined lines produce a picturesque effect, such as gables, pediments, pyramids, spires, and inclined towers, pinnacles, &c.

Angular lines produce painfulness to the eye, and the more so according to their acuteness; this objection lies against the pentagon, and a cornice with many breaks.

Circular lines give gracefulness and elegance, as may be seen in domes, bow-windows, rotundas, vaulted ceilings, arches, bridges, &c.

Undulating or waving lines, as we see them in the Stuart gables, are picturesque, but neither beautiful nor elegant when so applied.

Serpentine lines in florid architectural decorations, such as the vine and the ivy, are beautiful, and convey an idea of motion, delicacy, and tenderness.

Hence the actual beauty of lines will be found to correspond to one or other of those associations, and those are, in fact, the most beautiful which have the most pleasing or affecting expression. Considering therefore lines in their abstracted view, and independent of the nature of the bodies which they distinguish, it seems very natural to conclude that those forms will be the most beautiful which are circumscribed by the most pleasing lines; but what is in itself beautiful may not appear so to every beholder, which arises from a want of judgment or taste,—that innate feeling of the faculty of the human mind, by which we perceive and enjoy whatever is beautiful, romantic, or sublime in the works of nature or in art. The sublimest of all the mechanical arts, as well as the noblest, is certainly that of architecture, and it is more or less so from magnitude or association. The forms of temples, for instance, although very different in form, have in all ages been accounted as sublime; even the most common forms employed in religious service derive a character of this kind from the qualities with which they are connected. The Gothic, for instance, from its broken variety, is picturesque. The Grecian, from its massy unbroken forms is sublime, and the Roman is, from its gorgeousness, noble and grand.—(Alison on Taste.)

† With respect to circular figures, they have their advantages and their defects; but, unhappily for the science of building, their advantages cannot in general be obtained without loss of room in the interior, and their defects are always obvious and injurious. The advantages of a compact or entire circle are many, and might seem to recommend it for some

By mixed figures, the architect is to understand those which are partly circular and partly angular. We have rejected the circular plan for a dwelling-house as a whole, in the note below: but the objection made against it in that respect, it must be considered, does not extend so far as to pronounce it useless when used in parts under a proper management. It is certain, that, in parts as well as in whole buildings, it is liable to the same objection of less room in the curving of the walls; but when the circle or semicircle makes any part of a building, this may be admitted with great effect. The light falls into the rooms but inconveniently from a circle; but there is really the same objection to the angular figures. Those stated in this respect being nearly equal, the architect should therefore consider the aspects, and these he will sometimes find in favour of the circular form. In the projecting parts of a house, such as the bay and bow-windows, if we examine them within, it is to be acknowledged the difference is in favour of the angular as to light, though on the outside the round projection has infinitely the advantage as to beauty: however, no one will acknowledge but that the round is the most graceful within.

There is something pleasing in the angles of these projections in a building, but as they are generally parts of some polygonal figures, there is confusion; whereas in the round there is grace and beauty, and an idea of capacity as well as an appearance of solidity and strength: upon these principles, and in this limited use, the architect is to understand that mixed figures may be employed advantageously. The complete circles, or whole ellipses, are not fit for an entire building; but parts and segments of them may be introduced with great advantage, as for a bow-window in the centre of the front of a house, or a polygonal angular one at each end of the front. Hence we see mixed figures may be combined, and that parts of hexagons, octagons, decagons, and the like polygons may be introduced.

Mixed figures in a plan being advantageously composed together, with caution and taste in their adoption, will certainly contribute to the beauty of the outline and to the whole building; but then caution is needful, or all will run into error. It is certain that variety is the source of great pleasure to the eye, yet conformity and harmony must be preserved in all buildings. If this were not to be observed as a strict rule, those mixed figures would produce confusion. Allowing for convenience on the plan, the architect is not bound to be so exact in the observance of every minor

buildings, in preference to all others; but the objections against it are not to be surmounted. The rotund is the most capacious of all figures, the strongest of all, and of all, the most varied in its parts; this recommends it for holding much and enduring for ages, as we perceive by the Norman or feudal castles; as well as for uniformity, of which we must acknowledge no figure is more beautiful; therefore, if a greater capacity upon the smallest piece of ground, a prospect of decoration, as regularity and beauty, were all required in a house, this figure would be preferable to all others. The circular form as to a room, though destructive of regularity in the other rooms, in a private house to which it adjoins—as a public building it saves ground, prevents confusion, and cuts off useless corners. Beautiful in itself, it needs less decoration than plain surfaces—such are the amphitheatres and round temples; it is more capacious than angular forms of equal perimeter, and more commodious for an assembly, whether meant for private amusement or public worship.

The rotund is the most expansive form, and of all figures, that which, though most space is contained within the area, must have much less room when divided into apartments for a dwelling-house; the curvature of the walls implies the necessity of this; and it is of all figures the very worst for a proper distribution of light, though it is the most beautiful as to form, in consequence of the eye not being checked. The ancients knew this objection as to light, and they guarded themselves accordingly; they nevertheless knew the capacity and beauty of a round figure, therefore far from rejecting it, they employed it sometimes for noble purposes. They knew the proper light for a circular figure must come from the top, and therefore they employed it for their Pantheon of heathen deities at Rome, which is a noble instance; but they also knew it was not a proper figure for a dwelling-house.

This definition let the architect remember, and he will banish the rotund as a whole from convenient and regular dwelling-houses, and leave the entire scope of it to temples and other entire edifices of beauty; such, I mean, as those for gardens and parks. This also, let it be remembered, a rotund figure is fit only for such buildings as are to have no inner divisions. Having thus freely discussed the use of the circle we come to that of the ellipsis; this has been recommended also for unity, but it is liable to the same objections which stand against the circular figure. Of whatever extent the ellipsis may be, there will be the same want of propriety, for this is nothing more than an elongated globe with its sides flattened.—(R. B.)

part, nevertheless he must not offend without reason. A cautious mixture of right and curved lines may here be allowed, they will be a source of pleasure and of feeling, and taste will dictate their adjustment; they will also allow the genius of the architect room to display itself, but the restraint of judgment must be exercised over it to prevent the excess which might otherwise possibly occur by this mixture of figures.

Thus the architect by proper regulation may vary the plans without end or limitation, and yet preserve in every one of them a perfect regularity of parts; this will employ the extent of his mind, and he will always please best who shall be most able on every occasion to give in different designs for the same site, and every one of them under the recommendation of something new. The eye dislikes an extended sameness of building as much as it disapproves of other objects. It is therefore the business of the man of science and of taste to take off the tediousness of that universal similitude, by introducing from this large source those objects of variety which reason allows fancy to adopt.

It is possible that the parts of an edifice, though different in themselves, may correspond well with one another; the only objection here would be the variation being made too great and the transition too sudden. This must be avoided, and under that limitation all will be agreeable, and he who shall be able to introduce this into his design, will find he has united these seeming contradictions: there will be variety in the parts, and yet fitness and uniformity in the whole building. The excess of extravagance of sudden variation is what the architect in this case is to avoid; indeed, it is not the variation, but the great degree of variations, that is the fault in buildings. Here then is the latitude the architect is to observe; and in combining and arranging his figures, he will consider the cube not much to his purpose; on the other hand, he will find the oblong square of all others most favourable and perfect in respect of convenience; but from its too great simplicity he will be induced to vary the outline: this he is to do by the use of obtuse angles and curved figures, which, though when they are entire, are by no means fit for a dwelling-house, yet may be thus admitted and combined with advantage.

Sir Henry Wotton, in his little Tract on Architecture, has made some objections to polygons, and mentions an instance of the pentagon being brought into practice by Baroccio in the palace of the Farnese at Capriola. In this there is a circle inscribed within the polygon, and that great architect has acquitted himself very happily in his contrivances for disposing of the light and saving vacuities; but that is a structure rather to be admired than recommended for imitation. Indeed, all that we can see there, is how a great architect may get over the inconveniences of such figures, and so far it may be of use to know, that, if a gentleman should have a mind to build on such a plan, the architect can manage it; this, however, is no more than making for a building the best of a bad figure; yet he must be very unwise who would wilfully place himself in such difficulties.*

* The sections of the sphere cut in every possible way, should be studied by the young architect, for domes, over buildings, halls, vestibules, &c.—(Author.)

EXEMPLARS OF THE VARIOUS STYLES.

PLATES IV.—V.

A COTTAGE ORNÉE.

"Far from the city I reside,
And a thatch'd cottage all my pride,
True to my heart I seldom roam,
Because I find my joys at home:
For foreign visits then begin,
When the man feels a void within."—DR. COTTON.

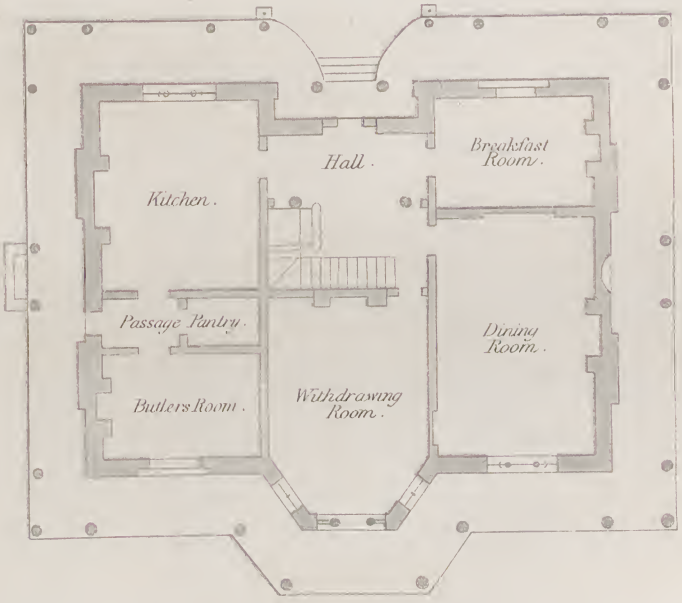
This English rustic ornate cottage is designed and appropriated for a small and retired family, of moderate income, and rural habits. Now, where the scenery is picturesque, and the cottage is embosomed in trees, (which it should be,) the house will require to be composed of irregular and diversified parts; the summits of the masses to be various, of unequal height, and playful and angular forms of different magnitudes and projections; some of which parts are to be seen entire, whilst others are partially hid by overhanging branches of trees, or enwrapped in ivy climbing over the roof, and up the chimney shafts, or otherwise hanging in festoons. Over the entrance porch, the dorma-windows and half-heaped gables of the cottage, Virginia creepers and honeysuckles may be intermixed and entwined to diversify the colours. Now, wherever there is a want of interest in the outline, or vacuity in the composition, some tree or rising hill in the background being essential to fill up the chasm, this deficiency may be contrasted either by dorma-windows in the roof, or by a cluster of chimney-shafts carried up, between each of which shafts a light should be made to pass through. The roof to a *cottage ornée* should be either wholly heaped at the ends, or partly so with half gables; in the front or back of the same may be dorma-windows, with pediments, and in the walls below polygonal bay-windows, and a projecting rustic porch, the roof being diversified in its outline against the sky by chimney-shafts carried up diagonal-wise. All these constitute a picturesque *tout ensemble*, and are the chief characteristics of a sylvan *cottage ornée;* and this picturesque effect should be observed in every essential point of view. The awning shown in the annexed plate is designed for a shady piazza, or shelter against the summer heat; here the occupant may take his exercise, read, and meditate quietly, or with his family sit on rustic seats and enjoy the beauties of nature which surround their dwelling. Such an appropriate appendage as the awning to the rustic cottage is most properly formed of trunks of unbarked trees, surmounted with a tasteful Chinese cornice above, (from which those objects had their origin,) scallopped and ornamented with raised points or small knobs, and below, at the eaves, with banner ornaments. The trunks or rough columns should have Virginia creepers with sweet Clematis, and China roses planted near them, to which they will climb and grow up; thus forming a most delightful, fragrant, and rural bower.

The barge boards attached to the horizontal eaves and pediments are to be formed of oak; the racking ones scalloped in cuspwork, with pendents and pinnacles at the lowest end, and at the apex of each. Sometimes a round cylindrical branch ornament is introduced along the eaves, which has a beautiful effect when enriched in the concave parts with trefoil leaves. The *cottage ornée* should always be erected on a foundation of stone, rising above the ground to about three feet; the superstructure may be formed and framed with crooked oak, and lathed and plastered between the studs, and the

A COTTAGE ORNÉE.

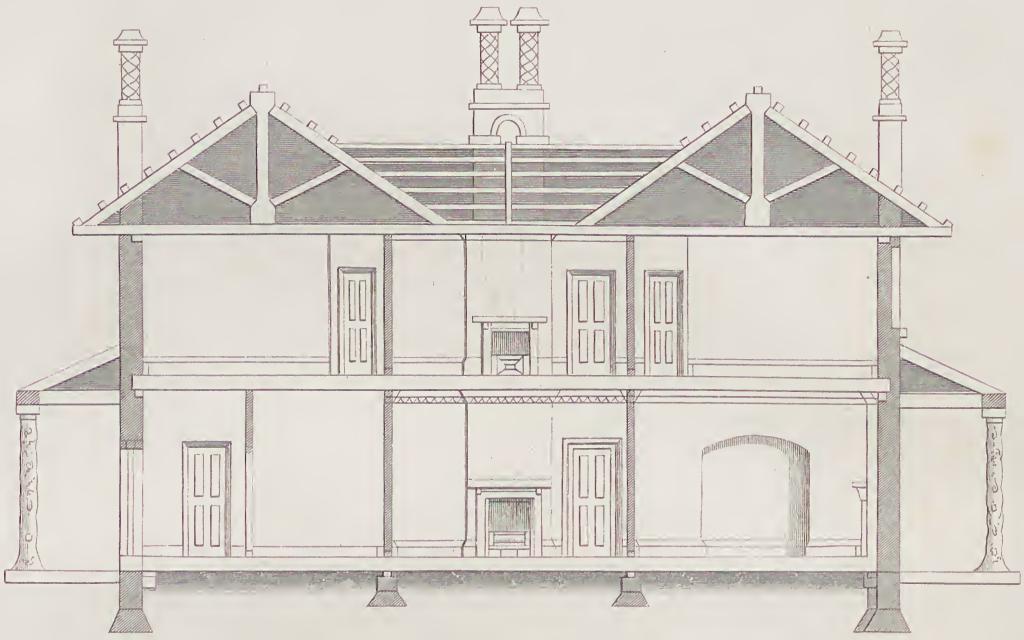
ELEVATION.

Scale of 10 5 0 10 20 30 Feet



GROUND PLAN.

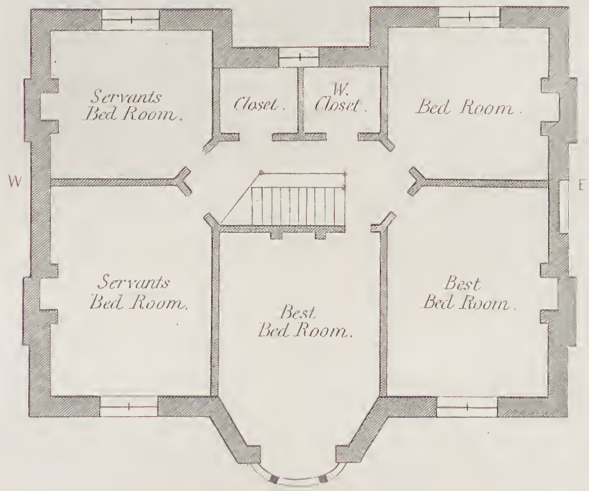
A COTTAGE ORNEE.



TRANSVERSE SECTION FROM WEST TO EAST.

Scale of 10 5 0 10 20 30 feet

Scale of 10 5 0 10 20 30 feet



CHAMBER PLAN.

E. Brown Arch.t

Engraved by J. Rogers

LONDON: PUBLISHED BY [illegible] VIRTUE [illegible] IVY LANE.

covering of the roof of thatch or bulrushes. The quarry, diamond, or lozenge panes of glass being in the windows, and the hexagonal foot-tiles within the awning are all to be in character with the other details of the cottage. Of all degrees of modern architecture, most grateful to the lovers of the more placid style of rural scenery, and to the philosophic and elegant mind, the cottage, with its accompaniments, has the most attractive claims. With one of these delightful little retreats, situated on the border of a lake, and near the sea-shore, over which rugged mountains rear themselves into vast natural amphitheatres,—a small garden, with a clear stream running through it,—a library of all that is useful in art and science, and elegant and just in poetry and philosophy,—who would exchange for the Escurial in Spain, St. Cloud in France, or the palace of the Grand Seignior?*

COTTAGE FURNITURE.

All the furniture should be of the rustic kind. The chairs formed with interwreathed backs; the tables made with pillar and claws of a plain, simple form: and the bedsteads in the tent character. The chairs for the hall may be formed with billets in the rustic manner. Dwarf chests of drawers, and pier-commodes should all be in character; and the wood employed in the furniture should be of English growth, as oak, ash, maple, and cherry-tree, and each article to be characteristic of the cottage itself. Walnut was much used in England at an early period, and at that time called the cabinet-maker's tree; and the lime, at a later date, when carving was introduced into England by the Flemings, was styled the carver's tree. Mahogany has been used in this country but little more than a hundred years, since which time our household furniture has become elegant and chaste.

COTTAGE SCENERY.

Some persons are satisfied if their house and the scenery around it meets with separate approbation; but such are totally deficient in architectural taste, or rather uninformed as to the general principles which govern Domestic Architecture in reference to its natural accessories, both immediate and remote. Now the connexion between a house and the adjacent grounds, though not intimate, requires congruity; the character of the home-landscape with that of the house should therefore accord, and appear as if they were both designed, planned, and planted by one great master, and severally embellishing and enhancing each other. "Si la vue de la rivière embellit le château il faut avouer, que la vue du château qui s'élève, presqu'à demicote embellit beaucoup le bord de la rivière. (Le Spectacle de la Nature.) A cottage *ornée* should be built in a picturesque or sylvan situation, on inclined ground, and in front craggy rocks, where water is seen falling in sprays between the masses of stone, partially covered by ivy and umbrageous shrubs: on one side may be a dell, and at the back a romantic mount. Having said that the scenery should harmonize with the cottage, we shall for further illustration, by way of example, refer the inquirer to Woodbine Cottage, the residence of Mrs. Johnes, at Torquay, in Devonshire, which is of the cottage *ornée* character. The residence itself possesses too much of the rustic appearance, but it is situated in a beautiful spot, and the accompanying scenery is of the most romantic character: in the mid-distance is the Bay of Torbay, incircled by Torr Abbey and Berry-head.

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* The studwork cottage *ornée* is evidently an improvement of the early British cottage. In ancient times, says Harrison, the old chronicler, the houses of the British were made with posts, and rudely, commonly strong and well timbered, so that in many cottages there were not above nine inches between stud and stud: but in speaking further of building, he says, "There is a distinction between the plain and the wooden soils. In the woodlands timber was used, but in open champaign countries the dwellings, for want of that stuff, no studs at all are used, but only frank post, raising-beams, groundsels, summer-beams, transoms, and such principal timbers, with here and there a beam, whereunto they fasten their radels, which they cast all over with thick claie, sometimes white with chalk, at others with red loam, and some with bluelike slate. In this manner as everie countrie-house is thus apparelled on the outside, so some are divided into sundrie rooms within. Where wood abounds they cover their cottages with tiles, otherwise with strong sedge or reed, and sometimes with slate." So perfect a picture, drawn by our old historian, of the rustic stud-work cottage; the kind of plastering and roofing in the early English cottages, requires no comment; but it must be remembered, that most of the cottages at this time consisted only of one story, and they were said to be "good in frames of tymber." Those cottages that had an upper floor were called "chamber-houses," and were of a more superior kind. The most noted was at Halifax, known by the name of the Old Chamber, supposed to have been the habitation of Pilkington, seneschal and rector of Sowerbyshire.—(Watson's History of Halifax.) Thoresby says, "a chambered cottage was a rare matter of old amongst the Sylvicolæ, in the forest of Hardwicke, where the chamber-man signified an inhabitant of a chambered house."—(A.)

PLATE VI.

A TUDOR MANSION, HENRY THE SEVENTH'S STYLE.

"Building royally,
Their mansions curiously,
With turrets and with towres;
With halls* and with boures,†
Stretching to the starres."—SKELTON.

In the annexed design, formed after Henry the Seventh's style,‡ with turrets and towers, and lofty bay-windows, an attempt has been made to combine modern arrangements with elegance, and that of an ancient quadrangular plan. The windows, instead of looking into a court, as they were previously wont to do for security, and at a time when the charms of landscape were little felt, and if so, disregarded, are turned, some outwards and others towards the flower-garden; and the chief apartments so arranged as to allow each its proper aspect. The suite of rooms forming the three sides in the garden-quadrangle, comprises the hall, dining-room, drawing-room, library, and billiard-room, all opening into an arched piazza. On the south side, towards the garden, is an open deambulatory for exercise in wet weather. The domestic offices are placed at the west, and are arranged along the garden. The extent of the offices would, of course, be regulated by the scale of the proprietor's establishment, care being taken, however, to keep the appendages in harmony with the main building. In reference to the deambulatory, there are few old mansions, says Sir John Cullum, without these walking-places, and Lydgate further in his Troy Boke,§—evidently with the model of a monastic cloister in his mind—describes the sides of streets in his time, as being covered with "fresh alures" of marble in arcades, crowned with rich and lofty pinnacles, and fronted with tabernacle work, vaulted, like the cloister of a monastery, and called deambulatories, for the accommodation of the citizen in all weathers. Hence there appears sufficient authority for the introduction of this somewhat ecclesiastical façade in domestic structures. From the piazza a descent by steps leads to the fruit-garden; and here the centre arch being directly opposite to the principal door, the scene would change at once, on entering from a lawn or park in front, to that of a fruit-garden in the rear; than which, perhaps, there is no transition more cheerful. The quadrangular flower-garden was an appendage peculiarly characteristic of the Tudor period, and that of a fountain was held as an indispensable ornament to a court.

"Into the base courte she dyd me then lede,
Where was a fountayn dejuréd of plesance,
A noble sprynge, a ryall couduyte hede,
Made of fyne gold enamelled with reede,
And on the toppe four dragons, blewe and stoute,
Thys dulcet water in four partes dyd spoute."

Lofty banquetting halls as Westminster Hall, built by William Rufus, and that of Crosby Hall, in the reign of Henry VI., in the city of London.

† Bay-windows ascending upwards from the base to the parapet, like Henry the Seventh's chapel at Westminster.—(A.)

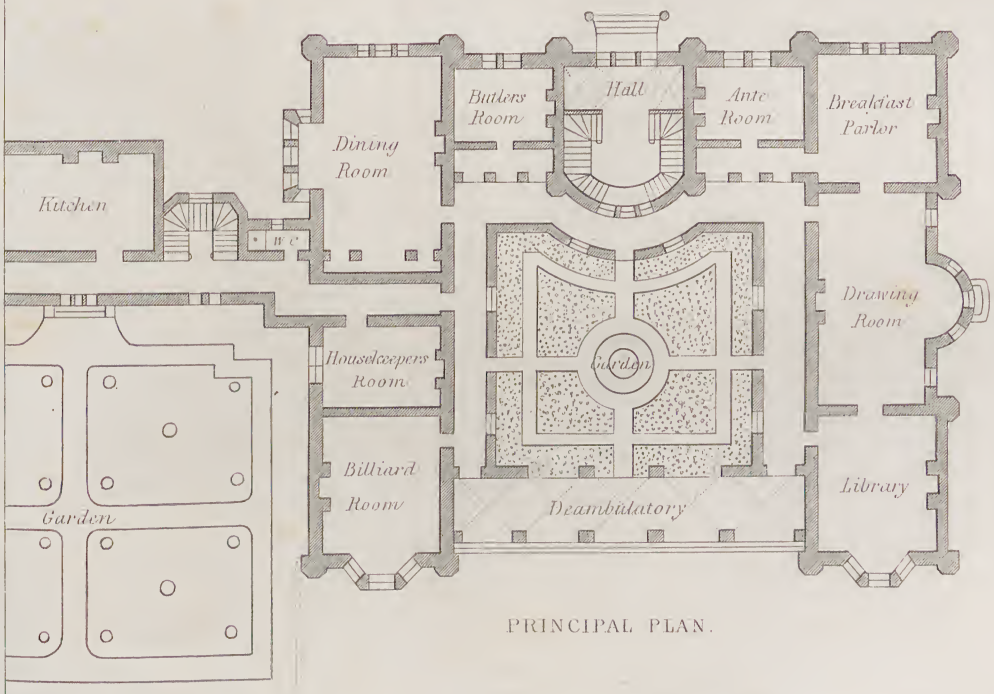
‡ Henry Tudor. This line consisted of Henry VII., Henry VIII., Edward VI., Queens Mary and Elizabeth, where the family terminated.—(Author.)

§ This poem is extremely curious, not for the copious incredulities and absurd inconsistencies which it exhibits, but because it conveys anecdotes of ancient architecture, and especially that florid and improved species which began to grow fashionable in Lydgate's age.—(Warton.)

A TUDOR MANSION, HENRY VII STYLE.

ELEVATION.

Scale of 10 4 0 10 20 30 40 50 Feet.

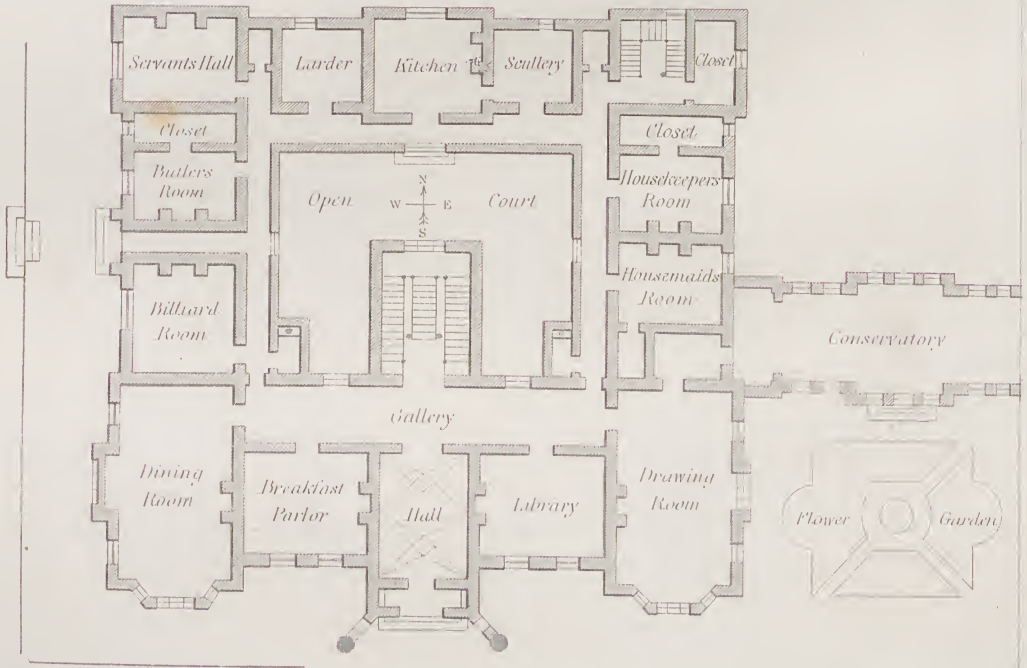


PRINCIPAL PLAN.

LONDON, PUBLISHED BY GEO. VIRTUE 26 IVY LANE.

ELEVATION.

Scale of 10 5 0 10 20 30 40 50 Feet



GROUND PLAN.

PLATES VII.—VIII.

A TUDOR MANOR-HOUSE, HENRY THE EIGHTH'S STYLE.

"After the Reformation the noblemen's mansions began to relax from fortified castles into social halls, and as self-defence was not so immediately the object of thought, convenience and magnificence began to be consulted: happily the manners of the baron visibly softened as his windows enlarged: the vigilant warder no longer attended his gates, and his dungeon became untenanted and useless."—Dr. Whitaker.

The design for a manor-house in the subjoined plate, portrays Henry the Eighth's style of building on the exterior, without that precise reference to the exact form or arrangements of the plans of that period.* Pursuing our purpose of adapting the plans of all the various architectural styles to the English climate, and modern arrangements, in accordance with the customs followed and established in our habitations, rather than with the foreign modes or the habits of the English in ancient times. For the last three centuries, i. e. since the Reformation, the ordinary apartments in our mansions seem to have been similar, though known by different denominations. The dressing-room, an appendage to the chief bedchamber in all well-arranged modern mansions, is not a refinement of the present age, for we find the inventories and descriptions of old houses constantly mentioning an "inner chamber" to most of the principal bedchambers; and in the Northumberland Household Book such an apartment is clearly referred to as the "chamber where my lorde makes him ready." In Verulam House, Hertfordshire, there were two bathing-rooms; and at Windsor Castle, Hentzner tells us that Queen Elizabeth had two bathing-rooms "ceiled and wainscotted (surrounded) with glass."

There cannot, perhaps, be conceived an architectural form more cheerful to the interior or more decorative to the exterior of a mansion, than an oriel-window above the ground-floor, to say nothing of its splendour when the glass is *ffloryssed* with *imagerye*, the magnificence of which it so admirably displays. (See Chaucer's Dream.) Two of the most florid examples extant are the one at John of Gaunt's palace, Lincoln, built in 1390, which places oriels in the reign of the Plantagenets; the more recent is that at Hengrave Hall, in Suffolk, erected in the reign of the Tudors, Henry VIII. (Vide Gage's History of Hengrave.) The former is the most beautiful and chaste, the latter being strangely imbued with the Italian manner of embellishment. The banquetting-hall of the manor-house was a large and lofty room, in the form of an oblong square, with an oriel in the wall at the upper end, above the raised pace or dais, that contained the baron's table: there were other windows high up in the side-walls, which, with the oriel, were filled with painted glass, escutcheons, &c. At the lower end of the hall was the entrance, where was a passage formed by a screen, sometimes most elaborately carved and enriched, having doors or archways in it, and over which was the minstrels' gallery; here the band assembled, and played during the time the servants were bringing the dinner to the table, and likewise after my lord had finished his repast.†

* The style of Henry VIII. was characterised in the plan by a walled court in front, having an arched gateway to it for an entrance, over which portal were sculptured the arms of the family. New Hall, in Essex, built by Henry VIII., afterwards called Beaulieu has on its gate-house the royal arms, with the badges of the rose and pomegranate crowned. The dwelling-house surrounded an inner court, into which the postern-windows faced and received their light.—(A.)

† Haddon Hall, at Hardwick, in Derbyshire, an ancient mansion, erected by piecemeal at various epochs, affords excellent examples of the several styles of domestic architecture, from the early laurel-leaf pointed arch, to the extremity of the obtuse arch in the Tudor reign. It is probably the most perfect of the ancient baronial mansions. The banquetting-hall here is certainly better calculated than any other to convey an idea of the large establishment and extensive hospitality of the old English baron now remaining in England.—(H.)

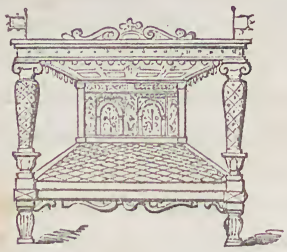
TUDOR FURNITURE.

Anterior to the Tudors, household furniture was in general of a rude, substantial character, such as clumsy oak tables, covered with carpets, benches, or "joined forms" of the same material, and cupboards for plate, pewter, "treene," leather jugs, glass, &c.; in the hall was a reredoss, or fire-iron in the centre of the floor, against which faggots were piled and burned, the smoke passing through an aperture in the roof; the fender formed by a raised rim of stone or tile, and a "fier-fork" and tongs. There was one kind of hall-table formed of narrow leaves, or boards hinged together, folding up into a small compass and resting on trestles. Shakespear makes Capulet, entering with his guests and maskers, exclaim—

"Give room:
More lights, ye knaves, and turn the tables up!"

ROMEO AND JULIET, *Act* i. *Scene* 5.

A BEDSTEAD, (temp.) HENRY VIII.



A HALL-TABLE, (temp.) HENRY VIII.

The hall was set with three tables; one stood on the high pace, parallel with the end of which sat the lord and his principal guests; the two others along the sides, at right angles with the upper one, for inferior visitors and retainers. Tables so placed were said to stand banquet-wise. The lord's seat was distinguished by a canopy, or "cloth of estate," with a "dorser d'arras," a cloth of tapestry or embroidery hanging against the wall under the canopy, and designated the "high dese." The step formed a line of demarcation for his guests, beyond which none were to approach except by special invitation.

The Great Dining Chamber was the apartment devoted immediately to the lord, his family, and peers, the hall being used for this purpose only on festivals. The furniture was here of a higher order than that of the hall. The tables and cupboards were sometimes on trestles, and folding; at others framed on massy turned legs, and always spread with carpets or embroidered cloths, on which, as well as on the cloths of estate—another appendage to this chamber in the royal mansions and those of great officers—the family arms were displayed.

Bed-rooms, like the hall and the state-chamber, had a high pace, on which were placed the standing-bed and the truckle-bed; on the former, which was of enormous dimensions,* and had a head-board richly carved, lay the lord, and on the latter his attendant—

"In the best bed the squire must lie,
And John in truckle-bed hard by."

MERRY WIVES OF WINDSOR.

SITUATION OF TUDOR RURAL RESIDENCES.

Nearly all the old houses in England stand on champaign grounds, or between hills, which the historian Harrison, temp. Elizabeth, accounts for. "In this island winds are commonlie more strong and fierce than arise in other places of the maine. That grevious inconvenience inforceth our nobility, gentry, and commonaltie to build houses in vallies, leaving the high grounds unto their corne and cattell, least the cold and stormie blast of winter should breed them greater annoiances; whereas in other regions each one desireth to sett his house aloft on a hill, not only to be seen afarr off, but to cast forth his beams of statelie and curious workmanship into every quarter of the countrie." Much of that naked and solitary appearance of country houses now is owing to the practice of totally concealing all the offices, and that by way of giving consequence to the mansion; but though exceptions may arise from particular situations and circumstances, yet in general nothing contributes so much to give both variety and consequence to the principal building as the accompaniments, and, as it were, the attendance of the inferior parts in their different gradations. The modern superior method of laying out, and warm manner of finishing rooms enable us now to obviate all such inconveniences as Harrison describes, and to adopt more cheerful as well as more healthful sites: but this is not to be understood as recommending bare or exposed situations —the top of a hill would, for a house in the Tudor style, be worse than the bottom; they cannot be better placed than in landscapes of rich foliage: attention to this by gentlemen cannot be too much regarded, as some of our professed architects of the present day study more that style of building which is admired or fashionable, than that which is appropriate to the surrounding scenery.†

* The royal bed of Henry VIII., at Windsor Castle, was eleven feet square.—(From the Hampton Court Inventory.)

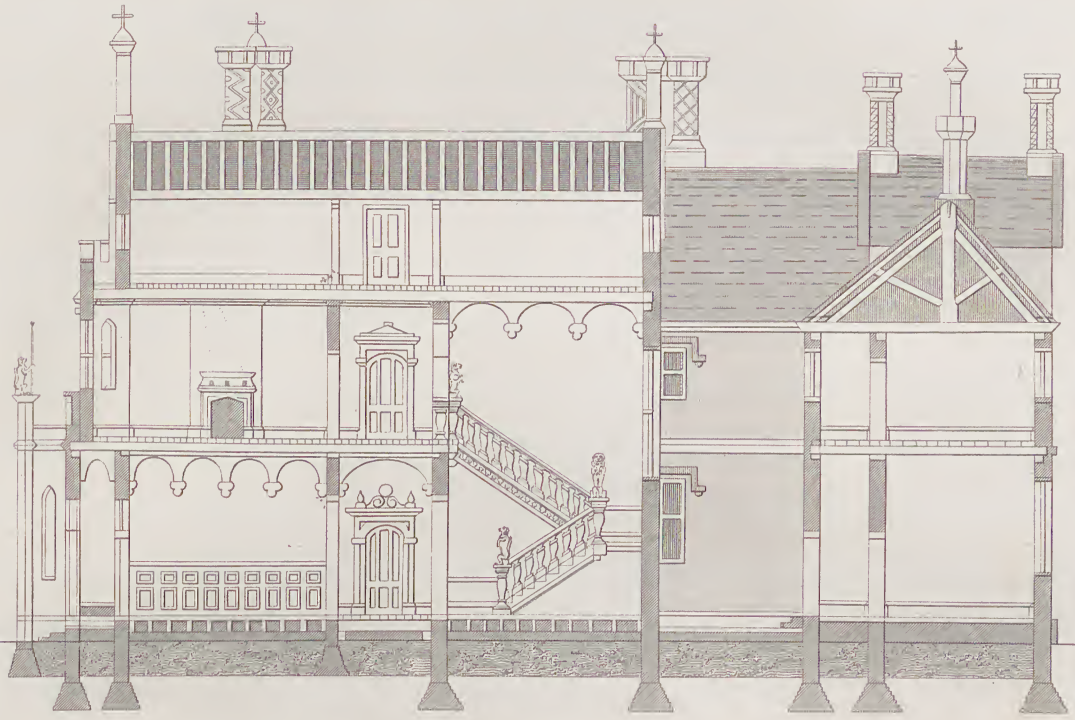
† Perhaps no scenery was ever more appropriate to the Tudor style of architecture than that at Mamhead, in Devonshire, where Sir Robert William Newman, Bart., has lately erected a magnificent mansion in the style of Henry VIII. The stables are in that of Edward the Third's character, the two best epochs of Domestic Architecture in England.—(Author.)

The following sonnet, written at Mamhead, beneath an evergreen oak, in 1785, may convey some faint idea of this place:—

"Here, Laura, since our wearied feet have strayed,
From the proud obelisk that fronts the scene
Of many a tufted hill, whose bolder green
The sweet perspective blends in mellow shade;
While sparkling through the stately fir-trees played
The burnished hamlets of the vales between,
And while the misty bosom of the glade
Seem'd opening to the azure sea serene."—(Rev. R. Polwhell.)

A TUDOR MANOR HOUSE, HENRY VIII.TH

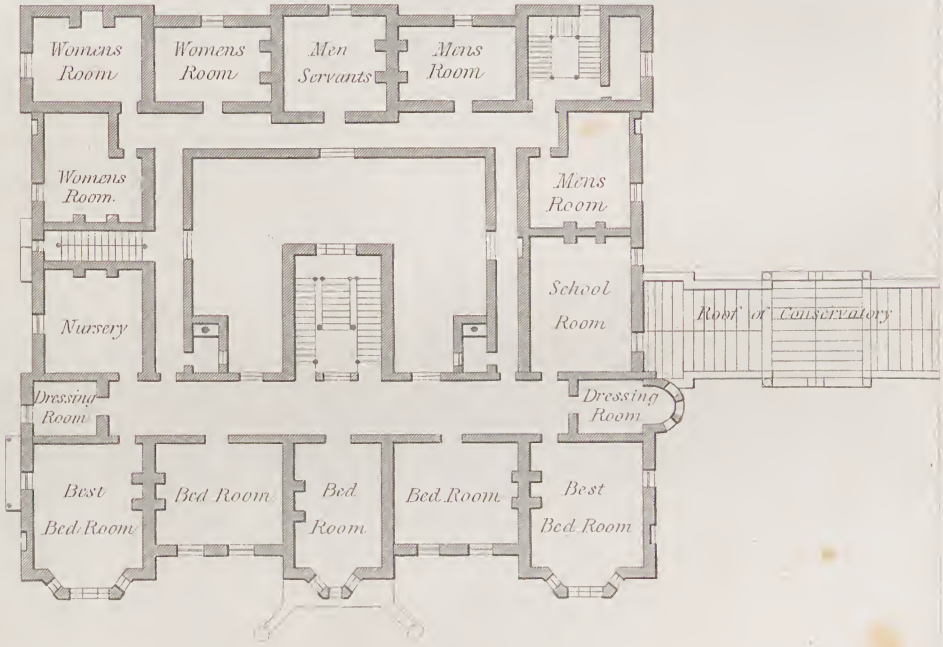
PLATE VIII



TRANSVERSE SECTION FROM SOUTH TO NORTH.

Scale of 10 5 0 10 20 30 40 50 Feet

Scale of 10 5 0 10 20 30 40 50 Feet



DORMITORY PLAN.

R. Brown Del.

Engraved by J. Rogers.

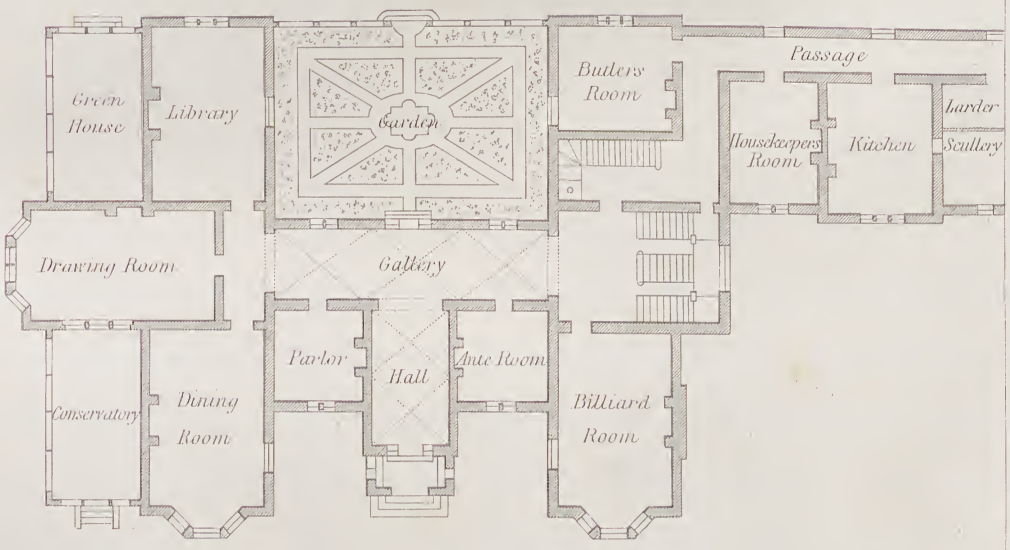
LONDON, PUBLISHED BY GEO. VICTOR, 30 IVY LANE

A TUDOR HALL, ELIZABETHAN STYLE.

PLATE 17.

ELEVATION.

Scale of 10 0 10 20 30 40 50 Feet



GROUND PLAN.

F. Brown Arch.

Engraved by H. Adland

LONDON PUBLISHED BY GEO. VIRTUE, 26 IVY LANE

PLATES IX.—X.

A TUDOR HALL, ELIZABETHAN STYLE.

"Every part of decorative architecture which is discoverable in the Tudor mansions before the reign of Elizabeth, was derived from the then prevailing sacred architecture. Our only motive in calling attention to this fact, is the desire of keeping the mind on fixed principles, rather than on modifications. In the reign of Elizabeth, the forms and decorations of the two styles, namely, Gothic and Antique, became so indiscriminately mingled and Italianized, that no true order prevailed, which has rendered it impossible to designate it by any intelligibly expressive epithet."—Boid.

The external character of this design refers to the reign of Elizabeth, when battlemented parapets were discontinued, and manifesting the work of tranquil times, when the nobility and gentry were at liberty to sacrifice strength to convenience, and security to sunshine. The Roman letter E was adopted for the plan, and arches now no longer crowned the mullion divisions of the windows, which were extended and transomed; Roman mouldings and Florentine ornaments in the interiors were also not only blended with, but had nearly superseded those of our ancient architectural details. After this period the builders seem to have indulged their own distempered imaginations without restraint; but with all the external beauty and internal magnificence of Tudor mansions, they were deplorably deficient in many of the comforts with which the modern Anglo-Italian houses abound. Yet, in this respect, a decided amendment is visible in the buildings of the Elizabethan age upon those of Henry VIII., and again particularly afterwards in the mansions of James I. and Charles I. Correspondent, indeed, with the increase of convenience was the decrease of taste; for as the plans of houses progressively improved, their external architectural character declined. Nor would the most ardent admirer of the pure old style venture to compare the dwellings of earlier days,* in point of comfort and cheerful economy, with those of the eighteenth century: thus the noble art of architecture itself was deplorably neglected.

The chaste and vigorous feeling which distinguished the works of the earlier architects was then, indeed, nearly extinct, and English architecture becoming in all its ramifications rapidly degenerate, although many of its features lingered in the heterogeneous composition of succeeding artists for half a century longer, as appears at Brambleby House, Sussex, (the scene of a popular novel by Washington Irving,) in which may be perceived the last glimmering of the Tudor style. However, let it not be imagined from what we have said, that a superiority in the disposition of apartments in England was accomplished solely by the introduction of the classic models which then took place, or that our own peculiar style of Tudor architecture was not susceptible of equally advantageous arrangements; of this we have proofs to the contrary. The Greeks designed for a widely different climate, and the indispensable large apertures of windows required by our atmosphere, would have entirely destroyed the characteristic massiveness and overpowering solemnity of the classic Greek, while in the obtuse pointed style, the spacious windows in England, by being subdivided by upright mullions and horizontal transoms, give amazing lightness, combined with an essential breadth of effect to our architecture. No better evidence of these facts could be adduced than the recent adoption of this style at Windsor Castle to all the purposes of state and private accommodation, under the munificent auspices of our sovereigns, allowed, as it justly is on all hands, that the only palace in this country worthy of a king, is that which is wrought in the architecture of Old England.

* It is observable (at Leckinsfield manor-house,) that in upwards of fourscore apartments, there does not seem to have been more than three or four destined for the noble owners, or their guests; these were probably the great withdrawing-room for the noble and his peers, the state bedchamber, the carved-chamber, and the banqueting-hall. All the rest were merely offices or cabins to sleep in.—(Dr. Percy.)

TUDOR FURNITURE, ELIZABETHAN.

Cabinets of massy proportions, carved in oak, ebony, walnut, and other woods, inlaid, some of which answered the double purpose of depositories and cupboards for plate, from having drawers and recesses enclosed by doors, and broad shelves between the tiers with turned columns were conspicuous objects in parlours and bed-rooms at this period. To describe their decorative workmanship would be a task so elaborate, and extend to so great a length, that the writer would have but little chance of satisfying himself, much less the reader, in an attempt to do it adequate justice.

CHAIRS (temp.) ELIZABETHAN.

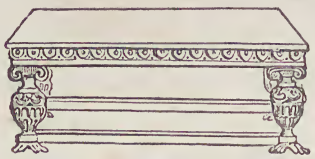


TABLE (temp.) ELIZABETHAN.

Bedsteads. The posts, head-boards, and canopies of bedsteads were curiously wrought and carved, in oak, walnut, box, and other woods, and variously painted and gilt. Ginger colour, hatched with gold, was a favourite style; but purple and crimson were also used in their decorations. Ancient documents describe these bedsteads as, "beddes of tymbre." They were further enriched with devices and mottoes, conspicuously placed on the panels and other parts. In the Gentleman's Magazine for November, 1811, there is an account of a very curious bedstead, at Hinchley, in Leicestershire, which is embellished with no fewer than twenty-nine emblematical devices, every one accompanied by an appropriate motto. And in Nicholson and Burn's History of Cumberland, one is described as existing in the year 1779, at Nunnery, called the Nun's bed, with this inscription—

"Mark the end, and
You shall never doow amis."

Chairs.—In most apartments we find "two great chayers," these were arm-chairs, with stuffed backs, and sides entirely covered, and similar to the lounging-chairs of the present day. Others, described as "*Flemish chairs*, scrolled chairs, and turned chairs," wrought in ebony, walnut, cherry-tree, and with high, carved backs, either stuffed in one long upright panel, or fitted with cane interwoved-work: the seats also stuffed, and covered with costly kinds of materials, as various as their shapes.

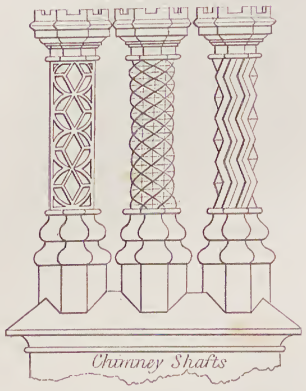
TUDOR GARDEN, ELIZABETHAN.

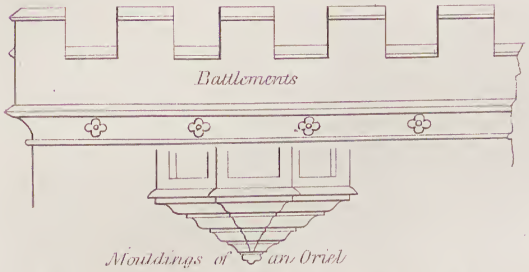
No garden of the age of Elizabeth remains; but a curious and complete description of such a noble place is given in Sir Francis Bacon's Essays, written about the end of her reign. The garden, he says, should not be less than thirty acres, to be subdivided into a green lawn of four acres, a garden of twelve acres, and a heath or pleasure-ground of six acres; having on either side those three divisions an alley of four acres, answering, we may suppose, to the modern shrubbery. The green in front to be kept finely shorn, as nothing is more pleasant to the eye, and to have on each side a covert-alley formed of trellis-work, producing a shady walk leading to the garden. Knots of figures under the windows of the house are considered by him as too trifling to be admitted into this plan. The garden to be a perfect square encompassed with a stately hedge, elevated upon a bank set with flowers.

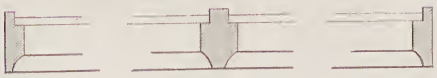
Images cut in juniper or other garden-plants are not recommended; but little low hedges, with some pretty pyramids, and a few fair columns and trellis-frames of carpenter's work; also statues for state and magnificence: the walks or alleys are to be spacious, and some set with musk-roses, wild thyme, and peppermint, which perfumes the air most delightfully when trodden upon. In the middle of the garden should be raised a mount, thirty feet high, surmounted by a banqueting-house with a chimney, and not too many windows. This mount to have three ascents made in perfect circles, and wide enough for three to walk abreast. Also a fountain that spouteth water, ornamented with images of marble, to be forty feet square, with steps up to it, and a pavement at the base; the water to be in perpetual motion. In the garden should be some fair alleys ranged on both sides with fruit-trees, and some pretty tufts of trees, a harbour with seats; but these by no means to be numerous. Vases, unless they be turfed and have living plants or bushes set in them, are not to be introduced. In the heath or wilderness, of which the most remote part of the plan is to consist, there should be no trees; but thickets of sweetbriar, honeysuckles, and woodbines; the ground set with violets, strawberries, and primroses; and to give it a natural wildness, little mounds with standard roses. The shrubbery and side alley to be sheltered from the heat, and to have variety of walks, finely gravelled, not grass; the borders set with fine flowers but sparingly, and at the end of both, the side ground a mount of some pretty height, leaving the wall of the enclosure breast-high to look abroad into the fields.

For aviaries he says, "I like them not except they be of that largeness, or they may be turfed, and having living plants and bushes set in them, that the birds may have more scope and natural nestling, and that no foulness appears on the floor of the aviary. I have now made the platform of a princely garden, partly by precept, and partly by drawing; not a model, but some general lines of it, and in this I have spared no cost; but it is nothing for great princes, that, for the most part, taking advice with workmen, with no less cost, set their matters together, and sometimes add statues and such things for state and magnificence, but nothing to the true pleasure of a garden."

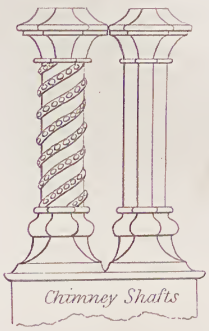
HENRY VIII.

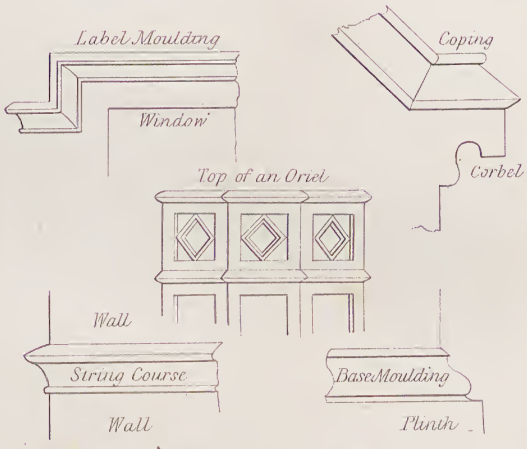




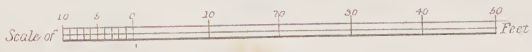


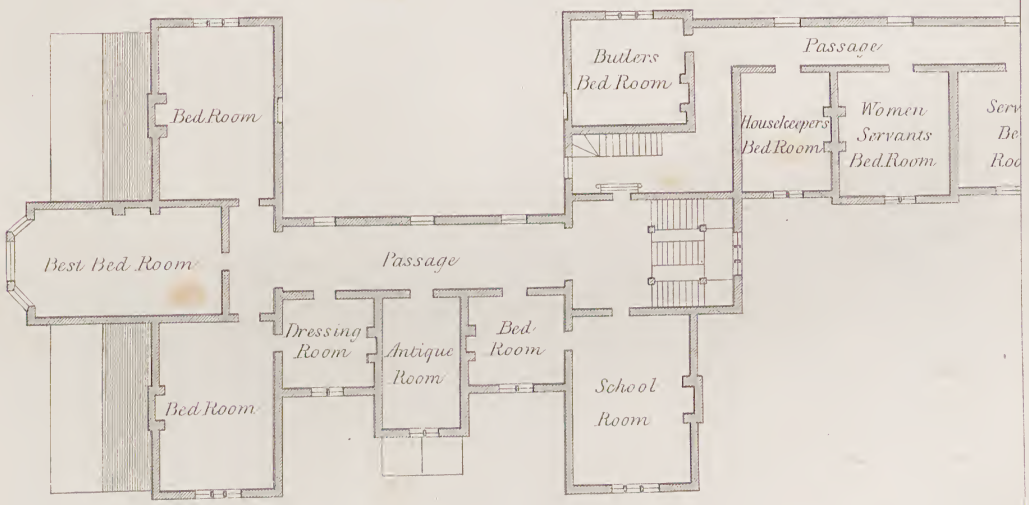
ELIZABETH.





ELIZABETHAN.





DORMITORY PLAN.

R. Brown, Arch.t

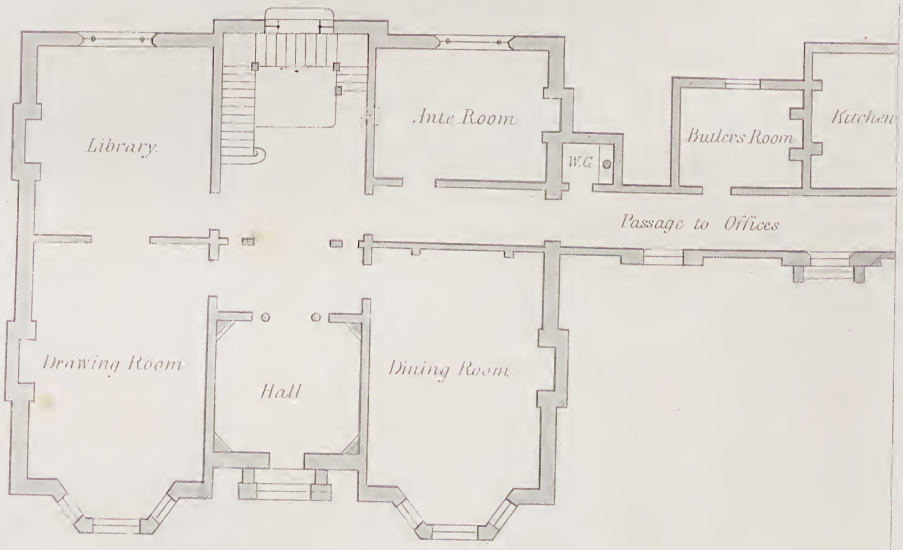
Engraved by H. Adl.

LONDON, PUBLISHED BY GEO: VIRTUE, 26, IVY LANE.

A TUDOR SUBURBAN RESIDENCE.

ELEVATION.

Scale of 10 0 0 10 20 30 40 Feet.



GROUND PLAN.

T. Brown del.

Engraved by H. Adlard.

LONDON PUBLISHED BY JOHN WEALE, 59 HIGH HOLBORN.

PLATES XI.—XII.

A TUDOR SUBURBAN RESIDENCE.

"Happy the man, from busy cares withdrawn,
Who seeks the sweets of rural ease,
Where every spot has power to please,
The rugged mountain and the tufted lawn."—CHEETHAM.

THE little suburban retreat here presented to view is designed to be built on a knoll, with lofty elm-trees on the back or northern aspect, and a plantation on the left, among which the offices are to be partially concealed. The principal view from the house is in front: there is also a view on the right. Now the house being much embosomed in trees, two projecting hexagonal dwarf bay-windows are introduced in the projecting wings on the ground-story, and at each side of the porch. The pendant oriel bow-window above the porch in the dormitory story belongs to a study or a dressing-room. The house is composed from that of Henry VIII. and Elizabeth's styles, conjointly. Now, in choosing a spot for a suburban residence near a city, too great circumspection cannot be exercised on those occasions. Thus the Romans were particular as to the situation of their villas, but like the Lombards, not always judicious in the sites of their cities. At Pisa, it is observed, the evil of the climate is humidity; both the Arno and its secondary streams glide very slowly, on beds which are but little inclined, and nearly level with the Pisan territory. We may calculate the mischief of inundations in this country from the violence of the rain, for its annual height (forty-seven inches) is about double that of our climate, but its duration is short, and not half of that in England. It generally falls in large round drops, direct to the ground, but it never breaks into mists, nor dims the air, penetrates the houses, or rusts metals, nor racks the bones by rheumatics with that searching activity peculiar to an English shower.*

Winter is by far the finest season at Pisa, and fully as mild as our spring. The latter is short, for violent heat, generally returns with the leaf. In summer, the mornings are intensely hot; at noon the sea-breeze springs up. The nights are damp, close, and suffocating, when not ventilated by the maëstrale. Pisa may reverse what physicians say of the capitol. They hardly conceive how people can live at Florence in winter, or how they can die there in summer. The Lung' Anno di Mezzo-giorno, which is in fact the north side of the river, is usually recommended to invalids as the healthiest quarter of the city. The hottest it certainly is, for its curve tends to concentrate the meridian rays, but on that very account it appears scarcely habitable in summer. On this side the house-fronts are baked by a powerful sun, which throws into the chambers a close, fœtid warmth, and more than those proportions of the moisture which it brings up. On the opposite side, the houses are all damp, and many are covered with lichens. On both sides the exhalations from the river seem unable to clear the lofty tops of the villas which line it, for walking at night on the promenade, I have often perceived my hair moistened with descending vapours. Convinced, therefore, that the general temperature of Pisa is mild enough for any constitution, I should recommend the quarter of Santo Spirito, or Via Santa Maria, as sharing only the common weather of the place, and being free from adventitious heat or humidity.

The most unhealthy places that have environed cities have, by adventitious circumstances, been rendered salubrious. At Rome, the desert which now encircles that fallen empire, owed its once

* This climate is favourable, even to the materials of art. The outside marble of the Duomo has in seven hundred years contracted very little of the lichens which would blacken an English tomb-stone in fifty. The bronze door of 1184 is not yet corroded with patina. The iron griffons of the Strozzi palace, wrought in the time of Lorenzo the Magnificent, are still as sharp as when they came from Caparra's smithy.—(Forsyth.)

ancient salubrity, not to any natural advantages which it now wants, but to the tillage and population of the once Latin states. During the empire, the public ways were lined with houses from the city to Aticia, to Tibur, and to Ocriculum. In the interval between these rows, the town and country were so interwoven, that Nero projected a third circuit of walls, which should embrace half the Campagna. At this period the bad air infected but a small part, between Antium and Lanuvium, nor did it desolate there; for Antium grew magnificent under different emperors, and Lanuvium was surrounded with the villas of the great. At length, when a dreadful succession of Lombards, Franks, and Saracens destroyed the houses, pavements, drains, plantations, and cattle, which had protected the Campagna from memphitism, it then returned to its own vicious propensity, for both the form of its surface and the order of its soils promoted the stagnation of water. Some rivulets lodged in ancient craters can never be discharged, but they might be filled up and circumscribed, marshes might be drained into lakes, and aquatic vegetation extirpated or shorn down.

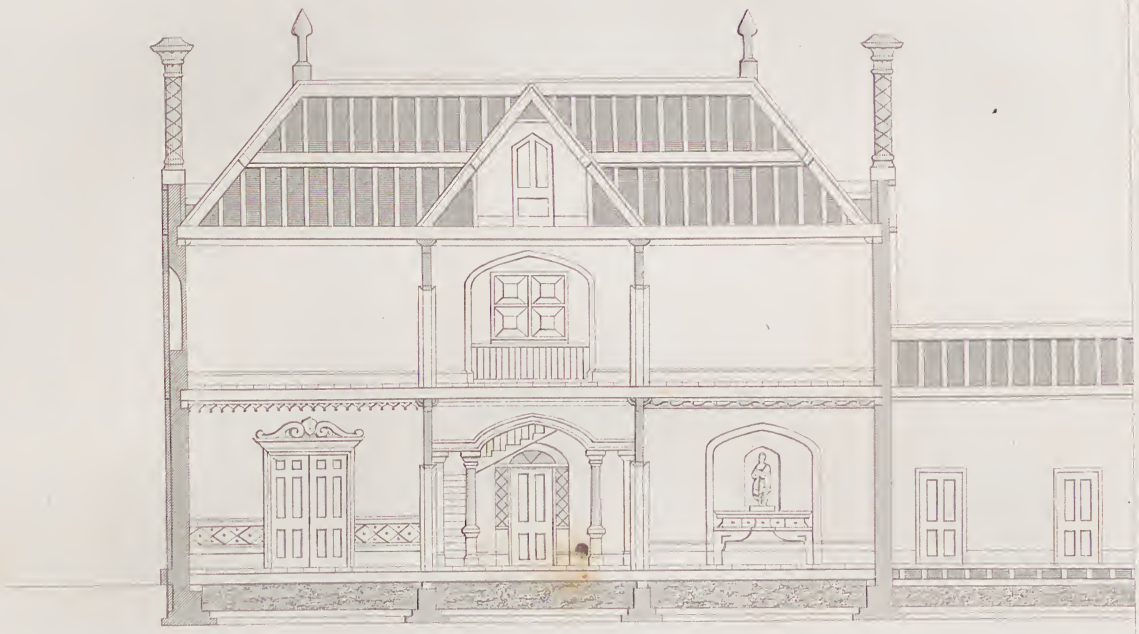
This malaria (as the people here call it) is an evil more active than the modern Romans, and continues to increase in spite of all the science which they publish against it. In the autumn of 1812, four thousand persons died victims to it in the Roman hospitals—"It is a battle renewed, every spring, and lost every fall." The malaria has been established in the Campagna for many ages, and is now advancing to the suburbs and the city of Rome, while the checks opposed to its progress are either defective or absurd. By clearing the woods of nettuno, which the ancients wisely held sacred, government has lately removed one defence* against the sea-vapours, which, now mixing freely with those of the land, render them doubly noxious. The government has affixed premiums for taking new ground into culture, at the distance of a mile either from the walls of Rome, or from the hills which bound the region infected, thus vainly hoping to extend the arable and reduce the unhealthy district by encouragements, which are of no avail against the tyranny of its own Annona.

ENVIRONS OF LONDON.

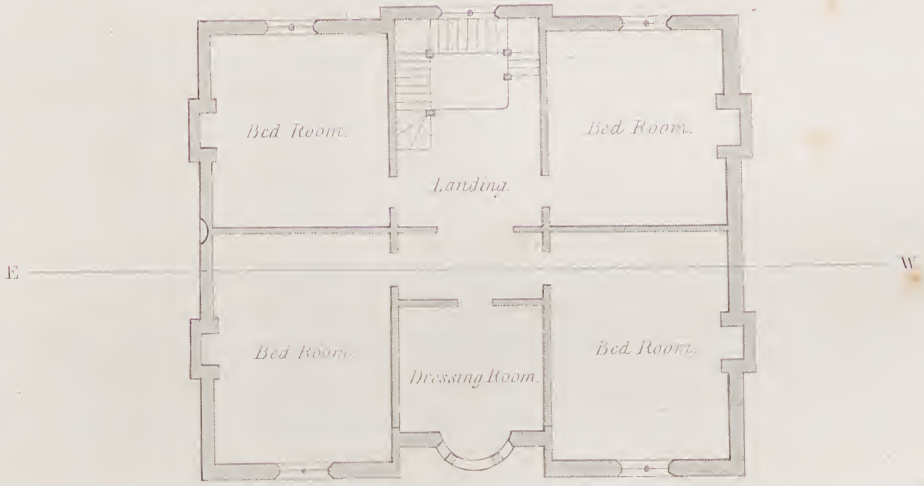
Leaving the environs of Rome, we shall now notice the suburbs of London. The high grounds around the city we consider to be salubrious and bracing, such as Herne Hill, on the south, a spot so elevated as to be entirely out of reach of the fogs or a dense atmosphere. The suburban villas abound on this Elysian spot, and are composed of almost every style of domestic architecture. Shooter's Hill, with Blackheath on the east, and much of the tract from London to Canterbury, is not only healthful, but beautiful, combined with the river Thames, seen winding its way to the ocean. Mrs Radcliffe, in passing from Deal to London, on her return from Germany, drew the following admirable contrast: "The difference between the landscapes of England and Germany occurred forcibly to notice. The large scale in which every division of land appeared in Germany, the long corn-grounds, the huge stretches of hills, the vast plains, and the wide valleys, could not but be beautifully opposed by the varieties of undulations of English surface, with gently swelling slopes, rich in verdure, and thick enclosures, woods, bowers, hop-grounds, sheltered mansions, announcing the wealth, and substantial farms with neat villages, the comfort of the country. English landscape may be compared to cabinet pictures, delicately, beautiful, and highly-finished. German scenery to paintings for a vestibule of bold outline, and often sublime, but coarse, and to be observed with advantage only from a distance."

* The memphic air being heavy, and therefore low, may be stopped by low hills, woods, and even buildings. Hence ancient Rome, which lay more on the south-east side of its mounts, was naturally more unhealthy than the present city, for this having shifted its population to the *Campus Martius*, while it lies open to the ventilation of the north. For the same reason the difference of exposure is very abrupt in its effects. Only a narrow road separates the two villas of Ludovici and Medici, yet the former is subject to the malaria, and the other a refuge from it.—(F.)

A TUDOR SUBURBAN RESIDENCE.



SECTION ON THE LINE E. W.



CHAMBER PLAN.

F. Brown Arch.t

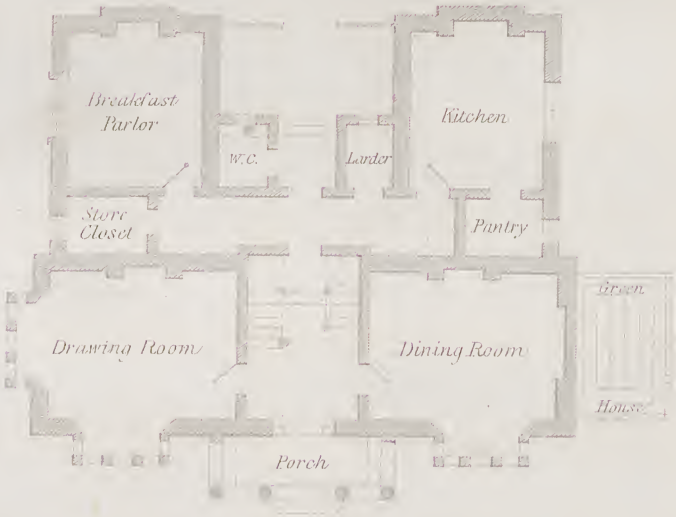
Engraved by H. A. Wise

LONDON, PUBLISHED BY GEO. VICTOR, 85 FAT LANE.

A TUDOR COTTAGE, ELIZABETHAN.

PERSPECTIVE REPRESENTATION.

Scale of 10 5 0 10 20 30 40 Feet.



GROUND PLAN.

H. Farrow, Archt.

Engraved by

LONDON. PUBLISHED BY GEO: VIRTUE, 26, IVY LANE.

PLATES XIII.—XIV.

A TUDOR COTTAGE, ELIZABETHAN.

"A man that builds a prettie house in sweete and holsome ayre,
With goodly rooms and choice of place, and windows large and fayre;
Shall heer his neighbour straight disprage the seat, and eke the fraem;
Yet he that praets wants wealth and wit, and cannot mend the saem."

CHURCHYARD'S *Poems.*

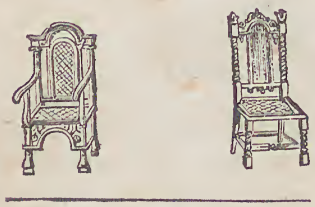
THIS Elizabethan cottage is introduced to show the superior difference between that of the Tudor and those of the Lancastrian period. Before our great forests became exhausted, the English builders were more amply supplied with timber than with stone, and the houses were then accordingly designed to employ as much as possible of the former, and to spare the latter material; this we find to have been the case in the reign of Henry VI., when the timbered houses erected on stone plinth foundations were most general in England. We perceive at Ockwell House, in Berkshire, and Mear Hall, Worcestershire, both Lancastrian houses, that the timbers in the frame-work of the walls are all straight pieces, with some set vertical, some placed horizontal, and others as braces, diagonally, in the herring-bone fashion; others were also diamond-shaped: but both these houses had gables and pediments at their ends, and projecting parts in front, and on the dormas; in the roof the former had cusped boards in the pediments. In the reign of the Tudors, the crooked oak, being more picturesque than the straight, was then much used. Harrison, the historian, at this period observes, that, "no oke can grow so crooked, but it falleth out to some vse." But it is singular, that much as chesnut timber was used in the roofs of banqueting-halls, both before and during the period to which these observations refer, should be so little noticed by English writers; comprehensive as Harrison is on almost every other subject, he does not even glance at this. Speaking of the scarcity of oak, which then began to be felt, he says, "In times past ordinary men were contented to dwell in houses buylded of willow, plum-tree, hardbeam, and elm, so that they use oke, (in civil architecture) which was in a manner dedicated whollie unto churches, religious houses, palaces, and baronial manor-houses, but now these timbers are rejected, and nothing but oke are at all in anywise regarded."—(Hist. of England, temp. Elizabeth.)

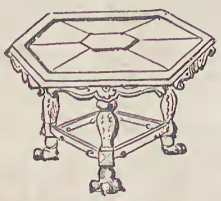
In order to produce an equal effect throughout the exterior, the entire surface of the walling between the frame-work was cased with a durable plaster, called rough-cast, made of lime and coarse sand, abounding with small stones and hair to bind it together. This composition was sometimes studded with glass, which, as an old writer says, "made a brilliant display when the sun shone, and even by moonlight."* Tuscan porches, barge-boards, pinnacles, pendants, and brackets, being the chief decorations of Tudor cottages; these should always be made of English heart of oak, and left to acquire by age a grey hue, and not of slight deal, painted, as is sometimes the case; a practice dictated by miserable economy, or ignorance of the builder; time, instead of improving, impairs such miserable affectations. The use of barge-boards is to conceal the barge rafters, and the edge of the tiles, as well as the laths and edge of the plaster of the soffits. In many cottages where these ornamented

* Whoever wishes to see in what manner the inferior gentry were lodged during the Lancastrian period in half-timbered houses, will inform himself, says Dr. **Whitaker**, by studying the Grange at Whally, in Lancashire, (a bailiff's residence). "This," he adds, "is a valuable specimen, for though we know pretty well how the knight, the peer, the monk, and the lord of the manor were lodged at that period, we should by no other means that I know of, have been able to form a guess at the accommodation of the next inferior rank."—(W.)

scalloped barge-boards have lately been introduced, they have been made of sizes so monstrously disproportionate, and of such inappropriate and heterogeneous forms, as to defeat their purpose, and to expose what they were intended to mask.*

COTTAGE CHAIRS, ELIZABETHAN.





COTTAGE TABLE, ELIZABETHAN.

TUDOR COTTAGE FURNITURE.

Having described the furniture of Henry the Eighth's era, and that of Elizabeth, little remains to be noticed for that of the Tudor cottage; the only difference that exists, is its being required to be more in the rustic character, less carve-work, and not so expensive as that for the mansions and halls. Much of the old furniture has been attributed to the Tudors, which are of Flemish and Dutch manufacture, arising, no doubt, from a want of a thorough knowledge of each other's characteristics. Now, the transition or difference is very little, but sometimes we meet with those chairs, of whose period we cannot be mistaken. In the possession of the Rev. George Oliver, at Exeter, some valuable chairs of the decided time of Elizabeth are to be seen. Among the carve-work are regal crowns, and the Tudor roses. The legs are turned in spiral curves, the backs richly carved in winding foliage, having crowns, roses, and devices, mixed with other ornaments. In the centre of the back, as well as the seat of the frame-work of those Tudor chairs, are panels formed by cane chequer-work. The arms are shaped in the old settle fashion. Those who wish to see designs for Tudor furniture on a larger scale, will do well by consulting Mr. Shaw's elegant work on this subject, where they will find every article that has been in use. The object of Mr. Shaw's work is to extend historical correctness in art, by placing within the reach of its professors a standard authority for all articles used in domestic purposes, from the earliest period in which such specimens exist, to the reign of James I.

TUDOR HERALDIC BADGES.

Tudor architecture admits of a profuse display of heraldic badges, decorations which have, from the introduction of the science, been greatly esteemed, and from their peculiar advantage of combining adornment with utility, are the most suitable embellishments for this species of architecture, but greatly out of place when applied either to Grecian or Roman structures. Nothing so satisfactorily establishes the dates of edifices as the cognizance of their founders; and few subjects present such ample scope for the exercise of taste in their disposition. The badges of the house of Tudor were either assumed or derived from descent or alliance; the red rose was the peculiar distinction of the house of Lancaster, and was borne by Henry VII. as Earl of Richmond.

The portcullis was the badge of the Beaufort branch of the same family, assumed by the descendants of John of Ghent, born in the castle of Beaufort; and agreeable to heraldic simplicity, a part of the castle, its most prominent feature, was depicted for the whole. The fleur-de-lis was also a badge of the house of Lancaster, and was introduced, together with the rose, in the border of Henry's arms as the Earl of Richmond. Descended from Cadwallader, the last of the British kings, and deriving from him the name of Tudor; he assumed the badge of the red dragon, Cadwallader's ensign.

After the battle of Bosworth-field Henry took as a badge the hawthorn-bush, crowned, in allusion to the circumstance of the crown being found in a hedge, whence it was taken and placed on his head.

The red rose, or rose of Lancaster, he placed on the sunbeams, as the white rose had been by the head of the house of York.

This monarch assumed the Tudor rose, or the red rose changed into the white, emblematic of his united claims to the throne by marriage with Elizabeth, the daughter and sole heir of Edward IV.

Upon the marriage of Prince Arthur with Katherine of Arragon, he adopted, in compliment to her, the badges of her house.

The castle was an ancient badge of the house of Castile. The pomegranate was also an ancient badge of the house of Grenada.

The sheaf of arrows was assumed by the house of Arragon on the conquest of Grenada, which had been achieved by the superiority of the Arragonese archers.

The rose dimidiated with the pomegranate, was adopted as being symbolical of the junction of England and Spain.

The phœnix in flames was assumed by Edward VI., in allusion to the particular nature of his birth, and was granted by him to the family of Seymour, on his mother's side.

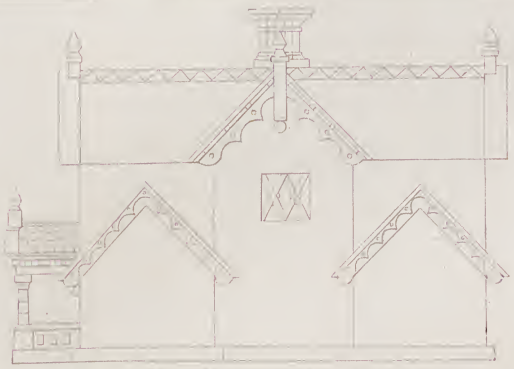
A white falcon crowned, and holding a sceptre, was assumed by Queen Anne Boleyn as her particular badge, and continued by her daughter Queen Elizabeth.

The harp, an ancient badge of Ireland, was used by Queen Elizabeth.

The rose, environed by the garter, with its motto, was a badge of several branches of the Tudor family.

All these badges were represented crowned when borne by the monarch, and were occasionally placed between the royal supporters.

* To color and preserve the exposed studwork of walls, if required, provide and melt twelve ounces of rosin in an iron pot, add three gallons of train-oil and three or four rolls of brimstone; when melted thin, add as much Spanish brown, or brown ochre, first ground fine, with as much of the oil as will give your colours. Lay it on with a brush, as hot and thin as possible, and some days after the first coat is dry, lay on another. This will prevent the timber from rotting, and keep them entire for years.—(Loudon's Agriculture.)



END ELEVATION AND BARGE BOARDS.

Angle Chimneys

Window Panes

Window Panes

COTTAGE PORCH.

OUTLINE PLAN.

BLOCK ELEVATION.

Rose

Portcullis

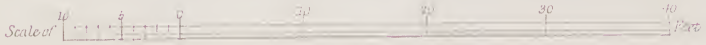
Pomegranate

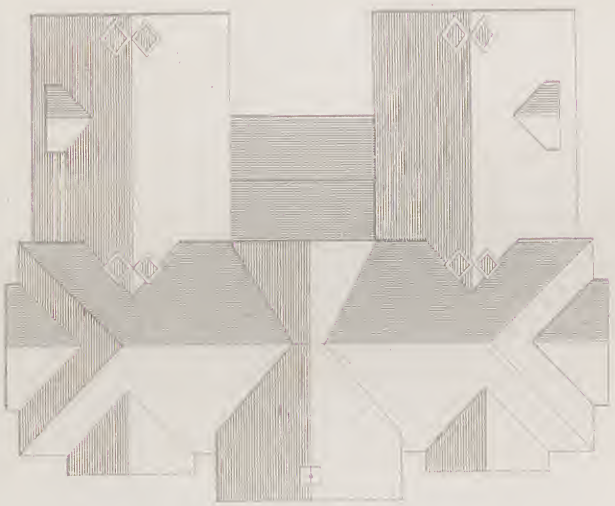
Fleur-de-lis

Falcon

TUDOR BADGES.

Crest Tile



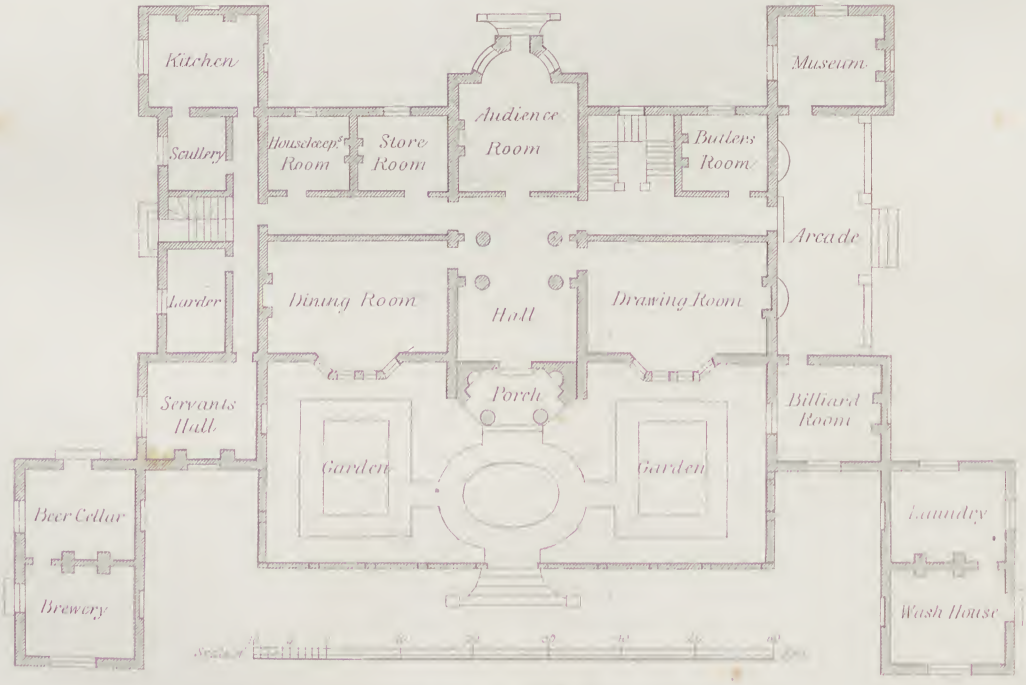


PLAN OF CHEQUER-TILE ROOF.

A MANSION IN THE STUART STYLE, JAMES I.

PLATE XV

ELEVATION



GROUND PLAN.

R. Brown Arch^t

Engraved by A. Adlard

LONDON PUBLISHED BY CHRYSTIE ST. IVY LANE

PLATES XV.—XVI.—XVII.

A MANSION IN THE STUART STYLE, JAMES I.

"Oldbuck went through a course of lectures upon monastic architecture in all its styles, from the Saxon and massive Norman to the florid Gothic, and from that to the mixed and composite architecture of James the First's time; when, according to Oldbuck, all orders were confounded, and columns of various descriptions rose side by side, or were piled above each other, as if all symmetry had been forgotten, and the elemental principles of art resolved into their primitive confusion."*—THE ANTIQUARY, vol. i. p. 269.

ON our left hand is seen the domestic style of James I., composed of the English Tudor and Italian Florentine, where may be observed the last glimmer of the former style, being about to be extinguished for ever, or shown forth in a new dress. The usual mode of combining the two styles in the great mansions of Elizabeth and James the First, by preserving the old in all the general elements of the composition, and using the new in the members or details, has been most aptly characterised as the translation of an English composition into a foreign language. But a more prevalent mode of employing the new style is one in which it is mixed, but not combined with the old; and a large class of our domestic buildings of this period exhibit the Tudor style in everything but a centre compartment.† Thus, a grotesque Doric porch, and an oriel-window above, decorated on each side with niches, and a series of terminal or inverted pilasters of Italian workmanship, of the most enriched and picturesque forms, and piled above each other, as if determined to render the attraction more piquante, like a foreign word dropped into an English sentence, or a highly enriched piece of Italian statuary surrounded with English marble,‡ is the character of James the First's style.

"The *counter-changes* of the two styles produce, as we have before remarked, the appearance of something like a transition between the Tudor Gothic and the Italian architecture of the Palladian school. But the true principles of a transition is wanting. Italian architecture was imported in a perfect form, and was subsequently adopted, either entirely or partially, or totally neglected, as taste or fancy dictated; or the building might be of sufficient importance to call for the employment of artists of the new school or otherwise, or as the assistance of such artists might or might not be attainable. Hence the different mixtures and combinations which have been described will be found to run parallel with each other during the whole of the period in question, without any of the gradual development which a transition properly implies."—The characteristic of the scroll ornaments which enter so abundantly into the decoration of this period, has been well described as "an intricacy of design which defies explanation." In the more sculptural decorations the taste of the age displays itself no less in the subjects than in the style, and the staple commodities of shields, armorial bearings, and devices, are mixed up with figures and allusions, allegorical, mythological, and classical. The chimney-piece occupying the whole height of the room, and forming part of the general design, when it possesses an architectural character, is generally made a focus for decorations of this kind. But it was far beyond mere change of style that the new architecture extended its influence. The whole plan and arrangement of the mansion, externally and internally, was affected

* We have seen the gate-house of the Divinity Schools at Oxford, built in 1613, where the barbarous and fantastic architect has applied or misapplied all the five Roman orders of architecture above each other, in a manner which would strike Vitruvius (could he rise from the dead) with amazement.—(R. B.)

† The concave and convex termination of the gables are the most decided characteristic of the Stuart style.—(Author.)

‡ Such is that of the princely mansion at Bramshill, in Hampshire, which was intended as a residence for the amiable and accomplished Prince Henry Frederick, eldest son of James I. The magnitude of its dimensions, although it has since suffered considerable diminution, plainly indicates a royal palace.—(Vide, Views, "The Mansions of England in the Olden Time. By Joseph Nash." A very interesting publication.)

by it. The great hall, though generally retaining its ancient form, became appropriated to its modern purpose of an entrance, and the partial adoption of the Italian mode of placing the principal apartments in the upper floor, had previously led to the enlargement and decoration of the staircase, which now became a principal feature in the distribution of the house. The plan of arranging the apartments *en suite* was neglected; but the great gallery, occupying the utmost extent of the building on the upper floor, seems to have been in the previous reign considered a necessary state appendage, even in the mansions of the second class, and was well suited to the crowded festivities and pageants which were the fashion of that age.

Although the enrichments were very abundant in the architecture of the Tudor and Stuart reigns, yet they required little more than design of outline, and could be wrought by almost every intelligent mason and joiner, if clearly directed and furnished with proper drawings and models. Even the forms of heraldic animals, more difficult than any other kind of ornaments, are so strongly marked as to need so little expression, as scarcely to come under the designation of carving or sculptural. The circumspection which was exercised in selecting ingenious artisans and artists at this time, may be one cause of the buildings being more florid and picturesque than the modern; those were then assiduously sought who could "grave, groupe, or carve, were sotyll in their fantasye, good devysors, marveylous of castinge, who could raise a wal with batyling and crests marciall, imageours in entayle," but now-a-days,

> "A cunning workman, fine in cloister close may sit,
> And carve and paint a thousand things, and use both art and wit:
> Yet, wanting world's renowne, may 'scape unsought or seene,
> It is but Fame that outruns all, and gets the goale, I weene."

PROGRESSION OF ENGLISH FURNITURE.

"The furniture of our houses," says Harrison, the historian, "exceedeth, and is growne in a manner even to passing delicacie; and herein I doo not speake of the nobilitie and gentrie onlie, but likewise of the lower sort in most places of the south countrie. Certes, in noblemen's houses it is not rare to see abundance of arrass with hangings of tapestrie, silver vessels, and so much other plate as may furnish sundrie cupboards * to the sum of a thousand or two thousand pounds, whereby the value of this, and their other stuffe, dooth growe to be almost inestimable. Likewise in the houses of knights, gentlemen, merchantmen, and some other wealthie citizens, it is not geson to behold generallie their profusion of tapestrie, Turkie work, pewter and brass, and thereto costlie cupboards of plate, worth five or six hundred or a thousand pounds, and their tables covered with carpets and laid with fine naperie."†

Of their earlier beds, says the old chronicler, "our fathers, (yea we ourselves also) have lien full oft upon straw pallets, or rough mats, covered onlie with a sheet, and under coverlets made of dogswain, with a good round log under their heads instead of a bolster or pillow. As for servants, if they had one sheet above them, it was well; for seldom had they anie under to keep them from the pricking straw, that ran oft through the canvas of the pallet, and rased their hardened hides. The next progressive exchange was treene (trencher) platters for pewter, and wooden spoons for silver or block tin, and so common were all sorts of treen (trencher) stuffe in olden time, that a man should hardly find four pieces of pewter, (of which one was peradventure a salt). At a later period, amongst the numerous costly and magnificent articles for the table, which were wrought in silver, gold, and other precious materials, were chargers, dishes, plates, porringers, saucers, vases, cups, tankards, flaggons, pitchers, peg-tankard,‡ pottels, ewers, creuses, bowls, goblets, basins, washing-basins and ewers, horns, cups for caudle, cruets, spice-poter, spiceres, salt-cellars, pepper-boxes, and candlesticks. They had also knives, but forks were not known till 1608, in James the First's reign." In Ben Jonson's Comedy of "The Devil is an Ass," (1616) Meercraft speaks of his "project of the forks," and Sledge inquires—

> "Forks?—what be they?"

Meercraft answers—

> The laudable use of forks,
> Brought into custom here, as they are in Italy,
> To th' sparing o' napkins."

* Cupboards were triangular buffets.—(Stow.)

† The good man of the house sat at the upper end of the board "with a fayre napkyn layde before him on the table, lyke a master."—(History of John Winchcomb.

‡ The peg-tankard held two quarts, and had a row of seven pegs dividing the height into eight equal parts, each containing half a pint, as it were for a social company assembled at Christmas. The first person was to drink to the first peg, and the second to the next. This mode of drinking was to check intemperance.—(Brand's Popular Antiquities.)

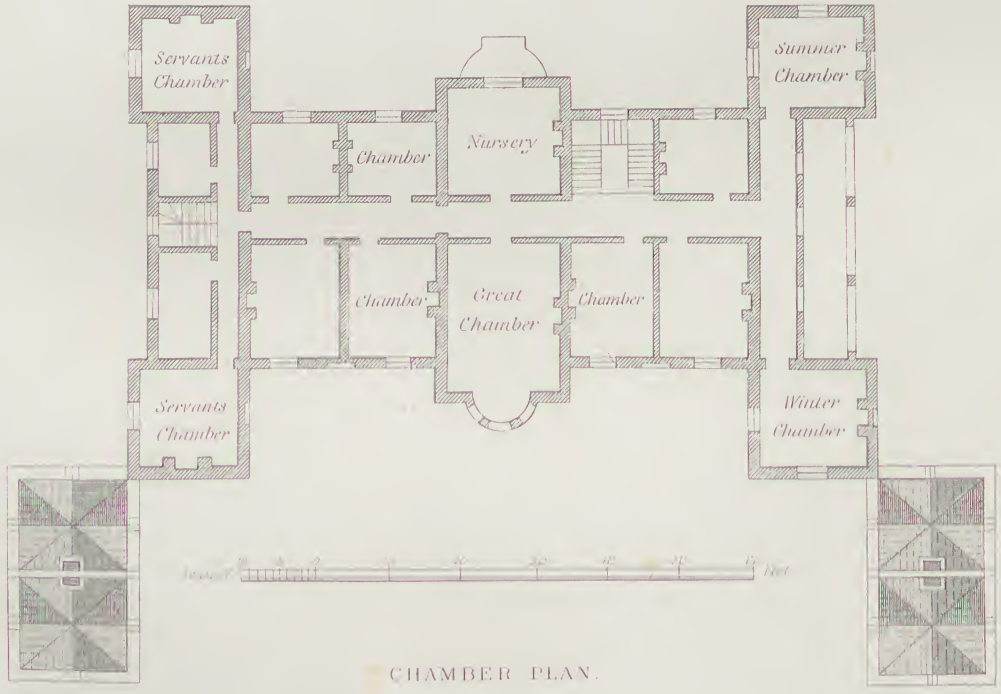
A MANSION IN THE STUART STYLE, JAMES I.

LONGITUDINAL SECTION.

REAR ELEVATION

DETAILS OF STUART ARCHITECTURE, JAMES I.

PORCH AND ORIEL.



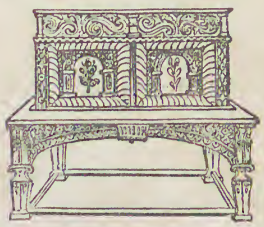
CHAMBER PLAN.

LONDON: PUBLISHED BY JOHN WEALE, 59, HIGH HOLBORN.

STUART FURNITURE.

The Stuart furniture, like that of the architecture of this period, varied considerably from that of the Tudor, in whimsicality. Instead of turned legs to the various articles, some were now formed crane-necked, and others were shaped in imitation of the hind legs of a goat, with eagle's claws at the feet, resting on a ball. Strength was abandoned for weakness, and propriety gave way to fashion. Scrolls, shields, masks, and fruit intermixed with foliage intertwining, festooned, and pendant, was profusely applied to the furniture at this time. The articles consisted of dining-tables, knee dressing-tables, sumptuous cabinets, and bedsteads with head-boards, richly carved, frequently containing sculptures of all the family when they belonged to a person of nobility. The chairs had, some of them, cane-work backs, and others were richly lined with damask: the legs, sides, and backs being gilt. Other Stuart chairs differed very little from those of the Elizabethan, and are only to be known by peculiar ornaments, that of the regal crown and Scotch thistle; such chairs I have lately met with in the possession of my much respected friend, the Rev. George Oliver, at Exeter. The looking-glasses were formed of one large plate in the centre, and bordered with smaller ones upon the sides and ends. The frames were gorgeously carved and gilt.

STUART CHAIRS.



STUART CABINET.

STUART GARDEN.

The terrace in front of the mansion was a novelty at this period, with its stone steps, pedestals, and grotesque balustrade ascending from the flower-garden to the entrance, and the marble fountain was in the centre of the garden; there were also vases and figures from the heathen mythology, disposed in different parts, which made this little spot a sylvan scene. Such was Bramshills near Basingstoke in by-gone days. The gardens at Holland House, Kennington, of the same period, are equally interesting; here is a parterre on the west side of the mansion beautifully laid out with box-hedges in various scrolls and devices. On the east was once a rosary of a circular form, now destroyed, which I well remember being particularly worthy of notice. A small garden, further west, is laid out in the Italian manner; it has a white marble fountain in it, on which water-lilies are floating. Fronting this fountain, on a raised terrace, is a beautiful alcove, and behind it a crescent-formed wall, which has steps at the end, ornamented with vases, and the wall is overgrown partially with woodbine and China roses; this seat being embowered within the branches of a noble elm-tree growing on the back, makes it a pleasant retreat. Here the late Lord Holland has written the following distich in honour of Samuel Rogers, the celebrated author of the Pleasures of Memory, a frequent resort of the Poet.

HERE ROGERS SAT, AND HERE FOR EVER DWELL
TO ME THOSE PLEASURES, THAT HE SINGS SO WELL.—VII. Hd.

Beneath this couplet, in a glazed frame, attached to the back of the seat, is an extempore effusion from the pen of Henry Lutterell, M.P.

"How charmed is the eye which in summer reposes
On this haunt of the Poet, o'ershadowed with roses!
I'll in and be seated, to try, if thus placed,
I can catch but one spark of his feeling and taste,
Can steal a sweet note from his musical strain,
Or a ray of his genius, to kindle my brain.
Well, now I am fairly install'd in the bower,
How lovely the scene! how propitious the hour!
The breeze is perfumed, from the hawthorn it stirs,
All is silent around me—but nothing occurs—
Not a thought, I protest, though I'm here and alone,
Not a chance of a couplet, that Rogers would own.
Though my senses are enraptured, my feelings in tune,
And Holland's my host, and the season in June;
Enough of my trials—nor garden nor grove—
Though Poets amidst may linger and rove—
Nor even a seat so hallow'd as this can impart
The fancy and fire that must spring from the heart,
So I rise, since the muses continue to frown,
No more of a Poet than when I sat down;
While Rogers, on whom they look kindly, can strike
Their Lyre at all times, and all places alike."

HENRY LUTTERELL. *June* 2nd, 1818.

PLATES XVIII.—XIX.

A VILLA IN THE FLORENTINE STYLE.—PETRARCH'S VILLA AT ARQUA.

"The soft and quiet hamlet where he dwelt.
Is one of that complexion which seems made
For those who their mortality have felt,
And sought a refuge from their hopes decayed;
In the deep umbrage of a green hill-shade,
Which shows a distant prospect far away,
Of busy cities, now in vain displayed,
For they can lure no further, and the ray
Of a bright sun can make sufficient holiday."—*Childe Harolde*, Canto iv.

SPEAKING of this rural residence Petrarch says—

"I have a country-house in the middle of the town, and a town in the middle of the fields, when I am tired of being alone. I have only to go out, and I find society directly: when weary of the world, I return to my house, and am again in solitude. I here enjoy much repose, that was never known by philosophers at Athens, poets at Parnassus, or anchorites in the silence of their hermitage amid the deserts of Egypt."—PETRARCH TO BARBATO.

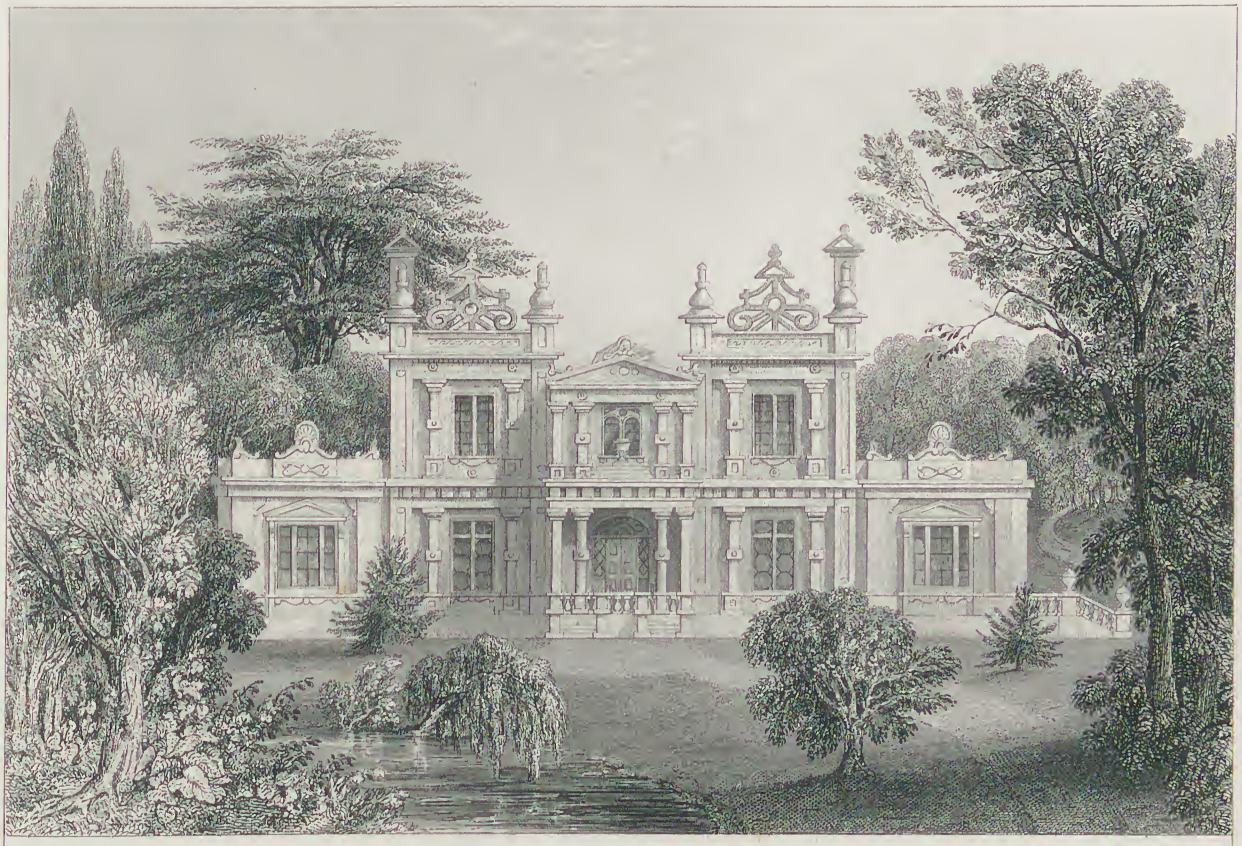
Florence, the Athens of Italy and the centre of Tuscan refinement, stands renowned for having revived the classic architecture of the Romans under Brunelleschi in the thirteenth century. This city, seated in a valley, is more smiling, sunny, and luxuriant, than the sombre beauty which it shelters. Amongst the infinity of agreeable objects of attraction that belong to this place of pleasure, none is more delightful than its approaches. Descending from the hills, the traveller beholds the most beautiful city in Europe, with its polygonal domes, and towers, and spires, and cupolas, and picturesque chimney-shafts, rising above roofs embosomed in groves of ilex, cedars, olives, and cypress, and intersected by hedges of myrtle and laurustinus, so graceful in full bloom. "The Arno, famed in song and story, runs rapidly and cheerfully through the vale, and entering the city, divides it into two nearly equal parts, which are connected by four bridges of classical designs. As the eye ranges over the prospect, and looks with or against the current of the river, the view is equally adorned with numberless villas, luxuriant shrubberies and vineyards, which continue in uninterrupted possession of this golden vale, from the river's bank, to the foot of the bold Apennines that close the panorama."

The old palaces here had originally high square towers or turrets, like those at Pisa, with overhanging machicolated parapets, and were introduced towards the close of the tenth century as a mark of nobility, as well as a private defence in free cities. To these succeeded a new construction, more massive, if possible, and more severe than the Etruscan itself; a construction which fortified the whole basement of the palace with large, rude, rugged bossages, and this gave always an imposing aspect, and sometimes a necessary defence to the nobility of a town, for ever subject to insurrection. Such are the palaces of the Medici, the Strozzi, and the Pitti. This harsh and exaggerated strength prevails only below; the upper stories are faced with vermiculated rustics or freestone, and the whole is crowned with an overpowering cornice, which projects beyond all authority; for here are no columns to regulate its proportions, and its very excess diffuses below a certain grandeur, distinct from the character of any regulated style.

The modern palaces are generally faced with stucco, but not paintings.* A few near Santa Croce are hatched, with figures "*al sgraffeto*," a style peculiar to Polidore Caravaggio. The larger palaces, such as the Capponi, run rather into large fronts than quadrangular courts. Their doors and

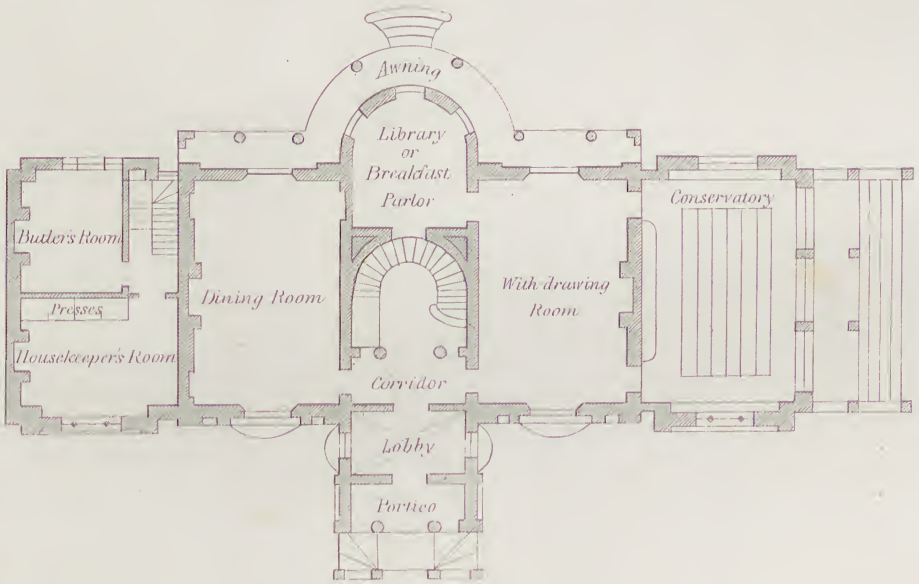
* Some of the old superb fronts at Florence are painted on the outside with historical subjects, others are left white; which in the summer season so affects the eyes of the inhabitants, like those at Naples, as to produce actual blindness.—(N.)

A VILLA IN THE FLORENTINE STYLE.



ELEVATION.

Scale of 10 0 0 10 20 30 40 50 Feet



GROUND PLAN.

SECTIONS OF A VILLA IN THE FLORENTINE STYLE.

PLATE XLV

LATITUDINAL SECTION.

LONGITUDINAL SECTION.

Scale of 10 5 0 10 20 30 40 50 Feet

CHAMBER PLAN

J. Brown Delin.

Engraved by J. Hopkins

LONDON PUBLISHED BY GEO. PRIDE, SIXTH ARCH.

windows are admirably designed, and being sparingly distributed, they leave an air of solidity and grandeur on the wall. The interior distribution accords with the length of front. One line of doors enfilades the apartments, and lays open the whole house; a plan rather incommodious for private life, but very proper for a gala, and suited to a hot climate. In every house lower rooms are vaulted; the upper apartments are hung very generally with silk, never with paper. The walls are coated with a stucco, which is rather gritty, but well adapted for fresco painting. Columns are not always employed in public works, and where they are not, very consistently. In the "Piazza della St. Munziata," the porticoes are composed of arches, resting on Corinthian columns, an Italian combination everywhere wrong, and here very meagre in its effects. In the Uffizzi the columns stand too high for so solid an order as the Doric. The designs of the architect, M. Bianchi de Lugano, are here tolerably free from that crowd of ornaments and angles which constitute the modern petitesse, and which call for reproof, even in the works of Michael Angelo. Speaking of the multitude of pilasters in the front of the houses at Florence, Parma, and Padua, and of their crowded cornices, and confusion of angles. Count Stendal says, "Our people cannot raise their ideas so far as to comprehend, that the ancients did nothing for the mere purpose of ornament, but that the beautiful with them was never unconnected with the useful.*

Of the villas, those built by Lewis Cornardo, at Padua, (a place from whence the study of our Florentine villa was obtained,) are well worthy of some notice. This Italian count, having studied eligible situations, and the principles of architecture, applied both to practice. "My villa," says he, "at Padua, (See his Treatise, 'SURE METHODS OF ATTAINING A LONG AND HEALTHFUL LIFE,') situated in the most beautiful part of the Euganean hills, is in itself really handsome as well as convenient; such, in a word, as it is now no longer the fashion to build; for in one part of it I can shelter myself from extreme heat, and in the other from extreme cold, having constructed the apartments according to the subject of architecture, which teach us what is to be observed in practice. I have another villa in the plain, which is laid out in regular streets, all terminating in a large square, in the middle of which stands the church, suited to the circumstances of the place. This villa is divided by a wide and rapid branch of the river Brenta, on both sides of which there is a considerable extent of country, consisting of fertile and well-cultivated fields. Besides, this district is now exceedingly well inhabited, which it was not at first, but rather the reverse, for it was very marshy, and the air so unwholesome, as to make it a residence fitter for adders than men. But in my draining off the waters the air mended, and people resorted to it so fast, and increased to such a degree, that it soon acquired the perfection in which it now appears. Hence, I may say with truth, that I have given in this place an altar and a temple to God, with souls to adore him. These are things which afford me infinite pleasure, comfort, and satisfaction, as often as I go to see and enjoy them."†

* Count Stendal's Sketches of the present state of Society and Manners, Arts and Literature, in Rome, Naples, and Florence.

† The environs of Florence are Elysian, and in the summer this abode of Hygeia, on the heights of Fiesole, on a fine evening is truly enchanting. From this eminence is to be seen the Val d'Arno, and palaces, villas, convents, and towns seated on the hills, all diffused through the vale in the very points and combinations in which a Claude would have placed them.

"Monti superbi la cui fronte Alpina,
Fadi se centro; venti argine e sponda!
Valli beate, per cui d' onda in onda
L' Ano con passo rignoril cammina!

This Italian town, like that of Sparta in Greece, stands on the side of a hill precipitously steep. The front of it is cut into a gradation of narrow terraces, which are enclosed in a trellis of vines, and faced with loose stone walls. Such a facing may, perhaps, cost less to cover, and add more warmth to the plantation than turf embankments, but it gives a hard, dry, effect to the intermediate picture, which, viewed from Florence, is the most splendid object in this region of beauty.

PLATES XX.—XXI.

A CHATEAU IN THE FLEMISH STYLE.

"Tully Veolan, situated within an inclosed park, in whose barrier-wall was a noble arched and battlemented entrance, was joined by a double avenue of trees, that lead to the mansion, composed alternately of horse-chesnut and sycamore, which rose to such a height that their boughs overarched the broad road beneath. The lower gate, opening into a courtlage, like the former, was ornamented with sculpture, arms, and battlements on the top; over which were seen, half-hidden by the trees of the avenue, the high steep roofs and narrow gables of the house, with lines indented into steps, and corners decorated with small turrets. It had been built at a period when castles were no longer necessary, and when the architects had not yet acquired the art of designing a domestic residence. The windows were numerous and small; the roof had some nondescript kind of projections, called bartizans, and displayed at each frequent angle a small turret, rather resembling a pepper-box."*—*Waverly*, Chap. viii. p. 75.

The Dutch architecture is not noble; wanting elegance, chasteness, and purity of detail; now, for the true Flemish style of building, we must look to Antwerp; the principal houses of which city are built with a kind of sandstone, others are constructed with bricks, and the gables formed into steps; the streets are generally wide, and it may be called a well-built city. It is said to contain twenty-six public places or squares, of which the Meer, the finest, contains a palace; there are seventy public buildings, and one hundred and sixty-two streets. The chief public buildings are the Bourse or Exchange, said to be the model from which those of Amsterdam and that lately destroyed in London, were taken; it is however far superior to either of them. The pillars that support its gallery around the colonnade are of marble. The town-hall is also reckoned a fine structure. Antwerp, like many other continental cities, excel our English ones by the decoration of trees. Along the whole line of the new quay a row of elms are growing, which make a fine summer promenade, like the Mall of St. James's Park, in London.

Most of the houses have flights of steps, in the rear circular staircase towers; and in front the step gables are towards the street. In some parts of the town they are constructed with double step gable fronts; one towards the street and the other towards the canal. The stone-fronted houses have generally balconies and columns in the Italian style. The chimneys of many of the houses are surmounted, not with circular pats, but with square wooden frames, consisting of four small pats, capped with an horizontal board, and open on every side. When built of brick, those are usually formed in the shape of the Roman letter Y. The apartments are mostly ornamented with taste, very much in the French manner, and the walls frequently painted with a series of landscapes in oil-colours, instead of being hung with paper or stuccoed. All the principal dwellings have a profusion of windows of large plate-glass, but this is more for the sake of ornament than light, for the Dutch are so fond of retirement, that the blinds in the houses are seldom drawn up.

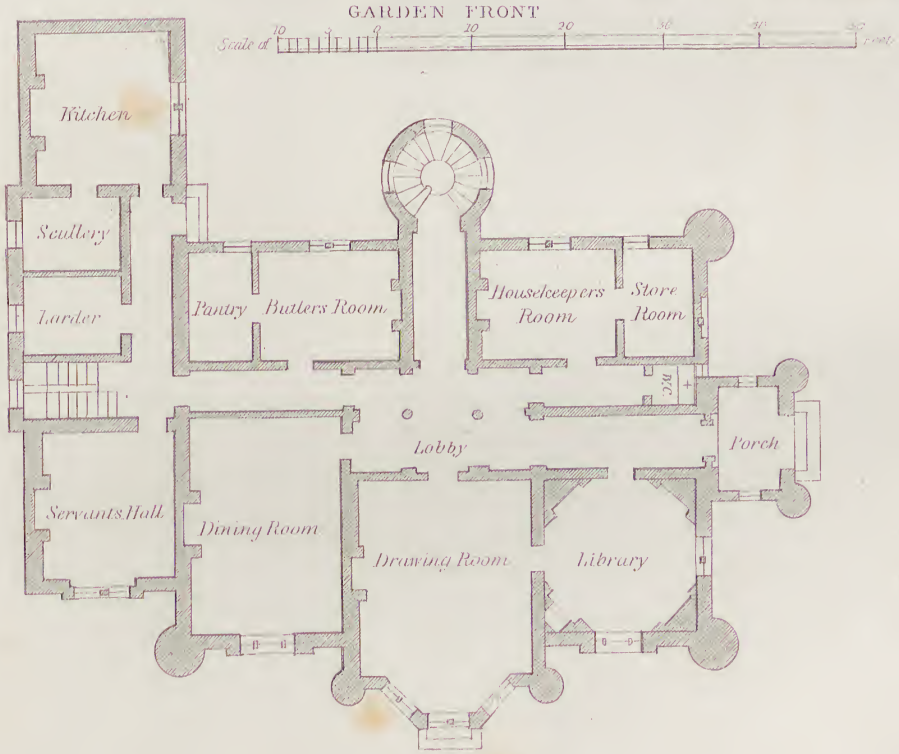
The city of Amsterdam, the capital of Holland, is built in the form of a crescent, and is nine miles and a half in circumference; it covers a space of about nine hundred acres, and is surrounded by a ditch about eight feet wide, bounded by an avenue of stately trees; the ground being marshy, the whole city is built on piles, which occasioned the celebrated Erasmus, when he visited this place, to observe, that he had reached a city "where the inhabitants, like crows, lived on the tops of trees."

* This is a true character of a Flemish château, many of which were erected in Scotland by the Flemings, when they fled there from the persecutions in Flanders by the Duke de Alva.—(Author.) "The peculiarity of the description of Tully Veolan occurs in various old Scottish seats. The house of Warrender, upon Bremsfield Links, and that of Old Ravelstone, belonging, the former to Sir George Warrender, the latter to Sir Alexander Keith, now both contributed several hints to the above description. The house of Dean, near Edinburgh, has also some points resembling Tully Veolan. The author has, however, been informed, that the house of Grand Tully resembles that of the Baron of Bradwardine, still more than any of the above."—(Note to Waverly, vol. i. p. 82.)

A CHATEAU IN THE FLEMISH STYLE.

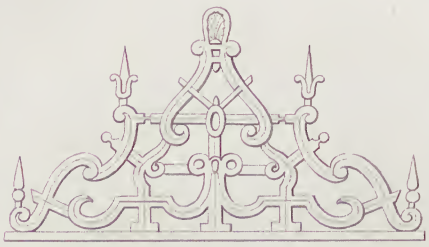
PLATE XV.

GARDEN FRONT



GROUND PLAN

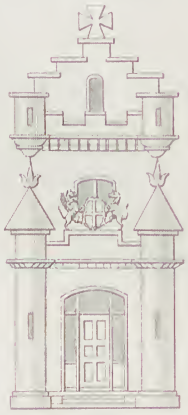
FLORENTINE ORNAMENTS AND FLEMISH DETAILS.



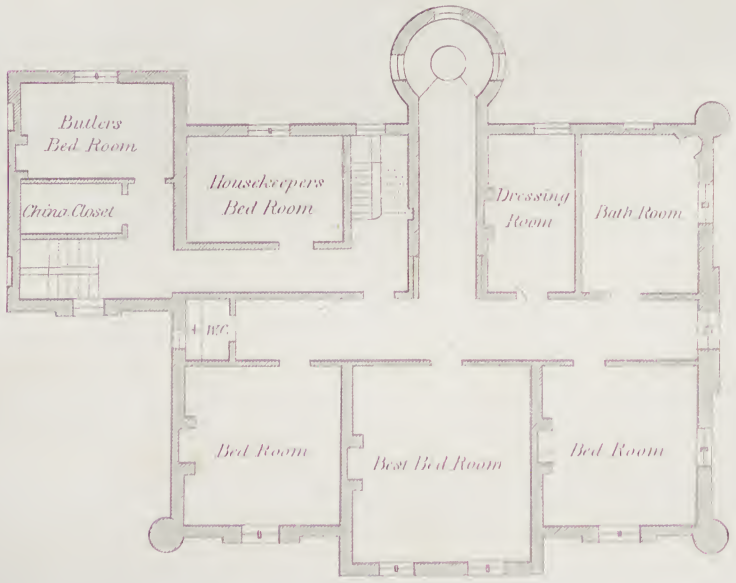
FLORENTINE SCROLL ORNAMENT

FLORENTINE PANEL ORNAMENT.

TOP OF STAIRCASE TOWER.



PRINCIPAL ENTRANCE.



CHAMBER PLAN

R. Brown Arch.t

Engraved by H. Adlard

LONDON PUBLISHED BY GEO. VICTOR ROUTT LANE

The mode of building houses in the provincial towns of Holland is very different from that pursued in this country; instead of beginning at the foundation, they commence at the top and build downwards. The large beams intended to support the roof are made to rest in the party-walls of the adjoining houses; below the roof are also inserted into the walls, beams, for the attic and floor; on this is fixed the studded partition. In this state the attic is often seen hanging for a considerable time before the other parts of the building are commenced. One advantage of this method is, that the lower part is kept dry, and the workmen can at all times proceed with their labours regardless of the weather. The lower part of the house also consists of studwork, strongly framed together; but those floors are contracted in their descent, like the hull of a ship, and rest upon piles driven into the ground for a foundation. From this circumstance, many of the houses are seen to lean towards the street, and some of them several feet out of the perpendicular, especially at the corners of the streets, where they are still more contracted to allow greater room to the passengers. The panels of the frames are filled up with small yellow brick. The same method of building is pursued in some parts of Belgium.*

FLEMISH FURNITURE.

To the wheel and to the axe of the executioner under the cruel Duke of Alva, by order of that bigot, Philip II. of Spain, when fell the heads of the noblest persons at Antwerp, Egmont, and Hoom, (says Anderson,) England is indebted for the glorious pre-eminence at which her manufacturers afterwards arrived. By such inhumanity, in consequence of religious opinions, at the time of the Reformation, the artizans fled here in shoals, where they were invited, encouraged, and protected by Queen Elizabeth. About a third part of the manufacturers and merchants who wrought and dealt in silks, damasks, taffeties, baize, serges, &c. settled in England and Wales, because England was at this time ignorant of those manufactures. Antwerp afterwards having fallen in commercial importance, Amsterdam became what Antwerp had been, the grand emporium of Europe; and thus by the various tastes of the Flemings was formed that style of highly carved household furniture, which is so frequently to be met with in England, particularly oak bed-teads, walnut-tree cabinets, cypress chests, and oak chairs, embellished with foliage, flowers, fruits, birds, and animals, both quadruped and biped, which at this time is again highly esteemed, and sought to be revived in our present Tudor rural halls and mansions. For the various articles and patterns of Flemish household furniture refer to the pictures and prints of the domestic scenes of Dutch life, represented with the greatest fidelity by the Dutch painters, such as Teniers, Ostade, Van Harp, Van Laer, and Gerard Dow.

FLEMISH CHAIRS.

CYPRESS CHEST.

FLEMISH GARDENS.

The Dutch are fond of gardens, and almost every house in their towns, except the centre, has an appendage of this kind. In the country they have planted avenues, laid out at right angles to the house, with a garden laid out in uniform geometrical figures. To some of their châteaux the yards are covered with sand, laid out in festoons of various devices, and the gardens attached to them present some of the most grotesque ornaments, deer, dogs, peacocks, chairs, tables, and ladders, being cut out of box in endless profusion, whilst wooden swans and ducks edge the small pieces of water with which the grounds are interspersed.—(My Note Book.)

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* About four miles from Amsterdam is Brock or Broek, one of the most curious and interesting villages in Holland. The streets are divided by little rivulets, the dwelling summer-houses, formed of wood, painted green and white, though whimsical in their appearance, are all remarkably neat: they are like so many mausolea, for the silence of death reigns throughout the place. The inhabitants, who have formed a peculiar association among themselves, scarcely ever admit a stranger within their doors, and hold but little intercourse with each other. They are generally rich, and so attached to their houses, that during the inundation, which took place a few years ago and flooded the whole village, (not an unusual thing in the Low Countries,) none of them could be induced to leave their houses; they retreated to the upper floors, and received the provisions in boats. The shutters of the windows in front are generally kept closed, and the principal door is never opened except at a baptism, a marriage, or a death. Almost every house has a family-table, which is never used but on one of these occasions. The streets are paved in mosaic-work, with various coloured glazed bricks and pebbles, and kept with the greatest care. No carriages are allowed to pass along them, and it is said, that there was formerly a law which obliged passengers to take off their shoes in summer before they entered them. A man is also said to have been reprimanded for sneezing in the streets; and a clergyman, who succeeded a very old predecessor, was treated with great shyness by his flock, because he omitted to take off his shoes when ascending the pulpit.—(Travels in Holland.)

PLATE XXII.

A POMPEIAN SUBURBAN VILLA.

"Pompeii, within the narrow compass of its walls, (being less than two British miles in circumference) contained, as it were, a specimen of every gift which luxury offered to power. In its minute but glittering shops—its tiny palaces—its baths—its forums—its theatre—its circus, it was a toy, a plaything, a show-box."—BULWER's *Last Days of Pompeii.*

POMPEII is situated in the Neapolitan territory, and now the city of the dead, having been overwhelmed by burning lava from Mount Vesuvius, much, however, of which has lately been removed.* The villa of Diomedes, in the suburbs, was the finest, and shows the double life of those early people, which was at once public and private. The public part is composed of the vestibule, and the *atrium*, which comprehended nearly always in the same order the *cavaædium* (court,) the *tablinum* (audience-chamber,) the wings, the corridors *(fauces)*. The private part contained the bed-rooms (*cubicula,*) the dining-room (*triclinium,*) the sitting-rooms (*œci,*) the picture-gallery *(pinacotheca,)* the library, the baths, the *exedra*, or parlour, the *xystum*, or gallery, set out with flowers and shrubs: all these apartments were ranged round the peristyle.† Most of the small rooms for private use received no light but from over the door, had no fireplaces, and were far from being comfortable.

It is evident from the inconvenience of these rooms, that the life of the inhabitants of Pompeii was chiefly out of doors and public, and that, except at night and their principal meals, which were towards the evening, they passed nearly all their time at the Forum or under the porticoes. The *atrium* even of the house was a kind of inner forum, in which they received their great friends and dependants, and where they continued to live in the open air. The home of the English, or the *coin du feu* of the French, was totally unknown to them.‡ In almost every house there is some difference in detail from the rest; but the principal outline of the plan is the same in all. In all you find the hall, the *tablinum*, and the peristyle, communicating with each other. In all you find the walls richly painted, and with all the evidence of a people fond of the refining elegances of life. The purity of the taste of the Pompeians in decoration, is, however, questionable; they were fond of the gaudiest colours, and fantastic designs; they often painted half of their columns a bright red, leaving the rest uncoloured.

POMPEIAN FURNITURE.

The apartments appropriated to sleep, were generally so diminutive, that few who have not seen the bedchambers even in the gayest mansions, can form any notion of the petty pigeon-holes in which the citizens of Pompeii evidently thought it desirable to pass the night. The bed, in fact, with the ancients, was not that grave, serious, and important part of domestic mysteries which it is with us. The couch itself was more like a very narow and small sofa, light enough to be transported easily by the occupant himself. "Take up thy bed and walk," was, as Sir W. Gell somewhere observes, no metaphorical expression. By the patile vases found in their tombs, we are informed, that they had dinner-beds of the earliest Asiatic fashion; tables of citron wood, delicately inlaid, and cœrulean chairs, which Livy says were afterwards introduced into Rome.

POMPEIAN GARDENS.

They had flower-gardens attached to their houses, and where it was small, the walls were frequently tinted to deceive the eye as to its extent, imitating trees, birds, temples, &c. in perspective; a monstrous delusion, which the graceful pedantry of Pliny himself adopted with a complacent pride in its ingenuity. The Pompeians, like the Genoese, had terrace-gardens on some of their houses.

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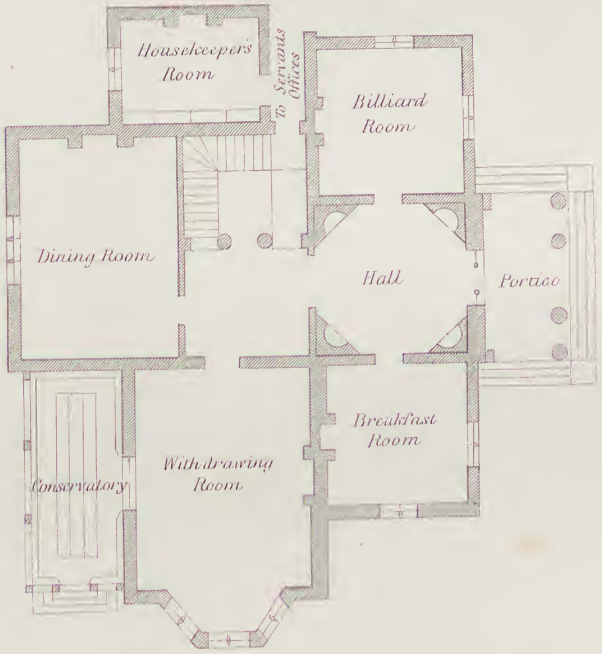
* At the time of this awful catastrophe, Pompeii belonged to the Roman empire; but Pompeii was a Grecian toy before it became Roman, and bears more marks of its mother than her mistress. The figures painted on its buildings are all dressed in the Greek *pallium*, without any appearance of the toga. The order of their peristyles is the Greek Doric, so different from the Doric of ancient Rome. The terraces which cover them, and which are still common in this country, were of Greek origin.—(F.)

† The houses of the inhabitants of Pompeii, like those of their native country Greece, generally contained a small court, into which all the rooms opened under a colonnade, and such were the early houses of the Romans.—(G.)

‡ The suburban villa of Diomedes, par excellence, had three stories; most of the other houses had only one.

A POMPEII SUBURBAN VILLA.

PLATE XXII

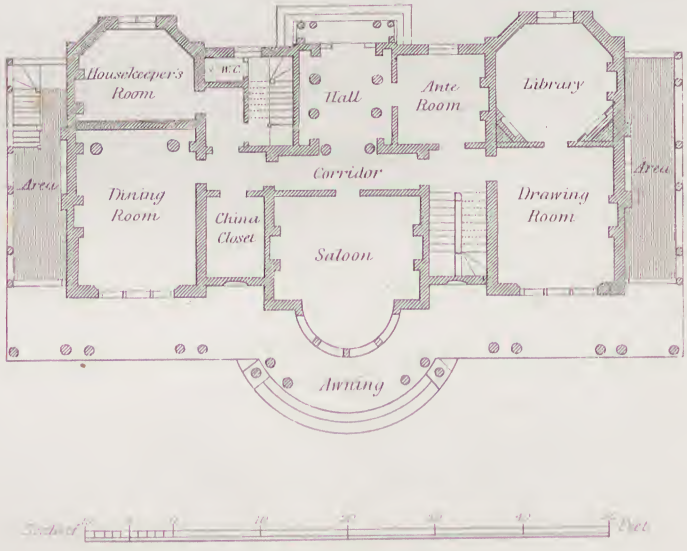


GROUND PLAN.

LONDON, PHILLIPS & CO. GEO. VICTOR, 38 IVY LANE

A VENETIAN SUMMER RESIDENCE.

ELEVATION.



GROUND PLAN.

R. Brown, Archt.
Engraved by H. S. Clark
LONDON PUBLISHED BY GEORGE WEBB, 25 IVY LANE

PLATES XXIII.—XXIV.

A VENETIAN SUMMER RESIDENCE.

"If a man have several dwellings, he may sort them so that what he wanteth in one he may find in the other. Lucullus answered Pompey well, who, when he saw his stately galleries, and rooms large and lightsome, in one of his houses, said, 'Surely, an excellent place for summer, but how do you do in the winter?' Lucullus answered, 'Why, do you not think me as wise as some fowls are, that ever change their abode towards the winter.'"—BACON'S *Essays*.

IN Venice, it may be said, the Eastern and Western Empires have met together; for here are to be found every known order, class, and style of architecture; the Etrurian, the Roman, the Lombard, the Tuscan, and the Saracen. The Rialto, alluded to in Shakespeare's play of the Moor of Venice, is really Arabian and compound Gothic architecture. Some styles are mixed, and others singularly displayed in the fronts of both public and private buildings.* The houses in this aquatic city stand on grand Etruscan substructions, which, from the necessity of the element around them,† must be simple and uniform. Above the water-floor the elevations are as various as their architects. Some display the light elegance of Sansovino, others the exuberant ornaments of Longhena, and a few the beauties of Palladio.‡ The Venetians, in general, affect too great a variety of orders in the same front; each order has, absurdly enough, its full entablature; the lower cornices are as prominent as the upper, and appear in profile as many separate roofs. In fact, the Grecian orders being foreign to the manners and wants of a city built upon water, will never enter into its accommodation but at the expense of half their beauty and all their consistency.

The Ducal Palace is built in a mixed style of Lombard and Saracenic architecture; the semicircular and the pointed, and reverses the principles of all sound building; for here the solid rests upon the open, a wall of enormous mass above, supported on slender work of coupled columns, arches, and intersected circles in the spandrils. A front thus bisected into thick and thin, and with such contrasts, a flat and fretted can please only in perspective. It is not enough that the structure

* See Canaletti's well known pictures of Venice, in which all those styles are seen.—(Author.)

† Venice is a moated town obtained from the sea.—(F.)

‡ Vincenza, the birth-place of Palladio, boasts of his noble palaces, even those which remain unfinished display a taste chastened by the study of ancient art; there beauty originates in design, and is never superinduced by ornament. These elevations enchant you, not by the length and altitude, nor by the materials and sculpture, but by the consummate felicity of their proportions, by the harmonious distribution of solid and void; by that happy something between flat and prominent, which charms both in front and profile, by that *maestria* which calls in columns not to encumber but to support, and reproduces ancient beauty in combinations unknown to the ancients themselves. His Vincentine villas have been often imitated in England, and are models more adapted to resist our climate and more congenial to our taste, than the airy extravagant structures of the East.—(A.)

PALACE AT CASERTA, NAPLES.

"The unfinished regal palace at Caserta (not by Palladio,) is a most gigantic structure: the situation of this palace is often condemned as flat; but is that a disadvantage? A convent, a Gothic castle, a villa, a hunting-lodge may, like ordinary men, seek distinction from eminence of station; but this august pile, like a true hero, involves all its dignity in itself. It depends on no accessories nor tricks of the picturesque; it challenges inspection near or remote: it demands an immense plain, and place of solitude. But the elevation is too flat, say some; it wants contrast, life, movement, relief: it should start out into pavilions; it should rise into towers, and break up the immensity of front. Yet this very immensity was the effect sought, an effect more sublime than all the diversities of aspect, and all the play of chiaroscuro. The very flatness which they blame promotes this effect; it qualifies every dimension, it unfolds the general design at one view in all its symmetry and expansion. The middle arch opens upon a long portico, which pierces the whole depth of the palace, and acts like the tube of a telescope on the distant cascade. In the middle of this portico the four courts form a cross. Here, of course, are the great vestibule and staircase, the central objects which reunite all the branches of the stupendous whole. On these two objects the finest breccia and brocatelli of the Sicilies are lavished; but it presents the glitter-like jewels on a dunghill, amidst unplastered walls, loose stones, smoky lamps, and filth; perhaps they are too magnificent. In the natural progression of ornament, a staircase and vestibule should lead to objects still richer than themselves; but what architecture can be made richer than these?'—(Forsyth.)

be really durable; it should also appear so. The Giant's Staircase within the quadrangle of this palace, is, however, imposing and grand.* The private palaces have three gates in the middle of their fronts. On each side below are two ranges of equal windows. Over the gates is a stately superstructure of balconies with arcades, and a large centre window for Venetian pageantry, placed in studied opposition to the general style of the front, which this wide vertical breach divides into two. The windows on each side the centre are generally arched, and formed in double, treble, and other divisions in the Lombard style. The chimneys figure on those palaces more conspicuously than so sordid an object should do, in imitation of obelisks, trumpets, and candelabra reversed.

VENETIAN FURNITURE.

Venice, like Tyre of old, became a great place for merchants and merchandize; thus, England was early indebted to Venice, Florence, and Genoa,† for almost all her manufactured goods. It also appears that at one time the same style of furniture prevailed in the greater part, if not the whole of Europe. At an early period bowls and horn-cups had been used as drinking-vessels; afterwards, however, Venice-glasses became fashionable in the houses of the nobles, they were of all patterns and greatly esteemed, being ornamented with figures, festoons, and other objects, engraved with a diamond. The Venice banqueting-dishes, which we find mentioned in history, were manufactured with fine potter's clay, baked, and painted in different colours. Looking-glasses were also brought from Venice about this time, but they were very small, and carried about by ladies of quality in their fans, and by noblemen in their hats. Looking-glasses, as furniture, did not become general in England till the reign of Charles II.

VENETIAN GARDENS.

The most surprising garden in Italy is that of Isola Bella, in the Lago Maggiore. Like Venice, it is isolated, being surrounded with water, and may therefore be termed the floating, as those gardens were at Babylon designated the hanging.‡ Isola Bella consists of pyramids of arcaded terraces, rising and receding one above another, where there are orange-trees and citron walks, interspersed with appropriate statues and spouting fountains. At one end is a magnificent and roomy summer palace. Bishop Burnet entitled this garden "a terrestrial paradise;" others have called it "the abode of Calypso, the garden of Armida." "Although it may not be entitled," says Dr. James Johnson, "to either of these appellations, yet it would be difficult to turn so small a rock in the midst of a lake to a better account; and, I imagine, that the spacious saloons in the palace, paved, lined, and covered with spars, shells, &c., to imitate grottoes, form a very delightful retreat from the burning sun of an Italian summer.

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* This Ducal palace, whose history is a series of "tales of terror," was commenced by Marino Faliero, Doge of Venice; but he was not permitted to see it finished, being beheaded on a charge of treason. The architect, Fillippo Calendario, afterwards met with the same fate, being hung as a conspirator.

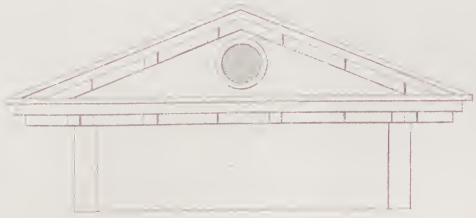
> "Statues of glass—all shiver'd—the long file
> Of her dead doges are declined to dust;
> But where they dwelt, the vast and sumptuous pile
> Bespeaks the pageant of their splendid trust."—(Byron.)

† Genoa is the most delightful city in Italy, as well as the most salubrious, and in aspect resembles that of Torquay in Devonshire, when seen from the sea. It rises on the left shore, climbing the steep acclivities, and covering them with streets and churches, and noble palaces, and on the summit are traced high poised casino pendant villas, embattled forts, and slender towers. Villas, country seats, look out one above the other from the contiguous range of hills that is drawn around, and behind which, in one direction, rise the Alps with their snowy tops, in another the rugged Apennines.

The lower apartments of the fine houses in the Strada Balbi, and Strada Nuova, are occupied as cellar-shops and lumber-stores, while the upper are appropriated to the residents. The state apartments are generally on the third-floor, looking into the central court, which every palace possesses; and the roofs, which are flat, are adorned with shrubs, trees, myrtles, pomegranates, orange-trees, and other kinds, upwards of twenty feet in height, growing in beds of earth several feet in depth, which rest upon the substantial arches constructed for their support. There, also, the air is refreshed by the constant play of fountains, and it is in these delightful terraces the more elegant of the Genoese pass the greater portion of their time.—(Travels in Italy.)

‡ The hanging gardens at Babylon being singular, I shall give the curious reader an account of them from Captain Mignan, who visited the spot: "Annexed to the palace of Nebuchadnezzar, at Babylon, were the Pensile gardens, which he erected to gratify his queen Amyetts; they consisted of terraces formed by rows of piers, upon which were placed large flat stones, over them a layer of reeds, mixed with a quantity of bitumen, above which were two rows of bricks, closely cemented together by plaster. Thick sheets of lead again covered these, and over it was laid the mould of the garden, so deep that it would admit the largest trees to take root and grow. In the upper terraces there was an aqueduct or engine, whereby water was drawn up out of the river."—(Mignan's Travels.)

SECTION AND DETAILS OF A VENETIAN SUMMER RESIDENCE.



Roof of Observatory Story.

Arcade

Ornamental Fret

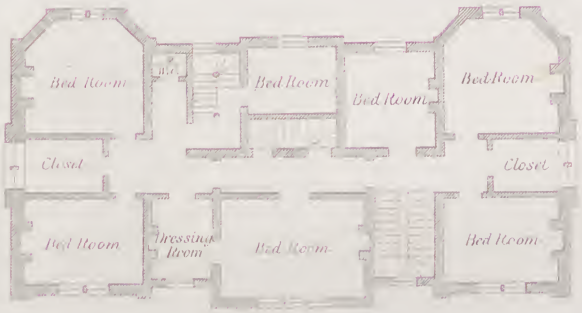
Cornice of Awning

Vase

Details ½ to a Foot

OBSERVATORY PLAN

TRANSVERSE SECTION.

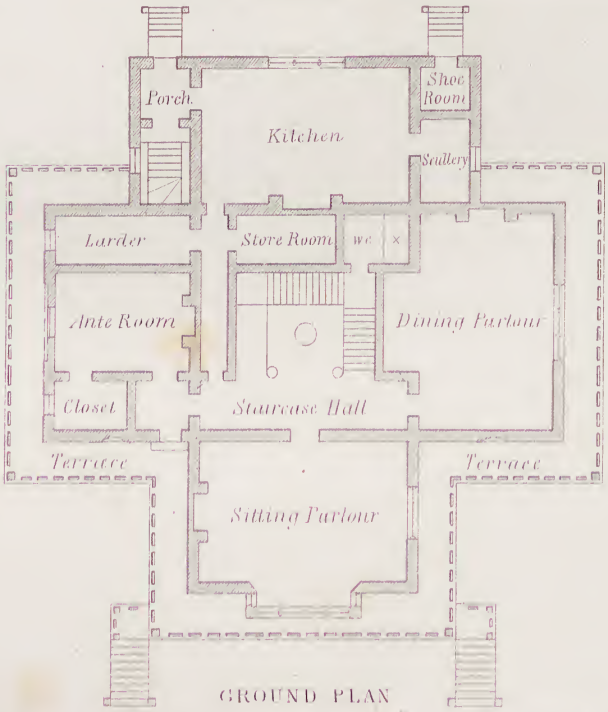


CHAMBER PLAN

A SWISS COTTAGE.

PLATE XXV

PERSPECTIVE VIEW



GROUND PLAN

Scale of 10 5 0 10 20 30 40 50 Feet

[illegible] Arch.t

Engraved by E. Adams

LONDON PUBLISHED BY GEO. VIRTUE SOLIVY LANE

PLATES XXV.—XXVI.

A SWISS COTTAGE.

——— "Above me are the Alps,
The palaces of Nature—whose vast walls
Have pinnacled in clouds their snowy scalps
And throned Eternity in icy halls,
Of cold sublimity, where forms and falls
The avalanche—the thunderbolt of snow!
All that expands the spirit, yet appals,
Gather around these summits, as to show
How Earth may pierce to Heaven, yet leave vain man below."
BYRON'S *Childe Harold*, Canto iii.

THE annexed design in the style of the cottages in Switzerland, is adapted for such situations as Torquay, Babbicombe, Linton, and Ilfracombe, in Devonshire, where all the scenery is in the Swiss character. The châteaux in Switzerland are of larger dimensions than the cottages, and have round staircase-towers, with conical roofs attached to them, and are for the most part romantically situated, perhaps, few equal to that of Coppet, near Geneva, once the dwelling of the celebrated Madame de Staël. The Swiss cottages are generally based on a stone plateau or terrace, from which the most enchanting views are obtained of mountain and glen; the superstructure or upper floors are wholly constructed of wood, (usually larch) hewn smoothly, and joined closely together: they have great projecting roofs on brackets. The basement floor is a kind of store-house or cellar, and seldom inhabited, as the winter snows fall so deeply as to rise to the level of more than five or six feet. A gallery outside usually surrounds the upper or bedroom story, canopied, or protected by the over-hanging roof above; the ascent to this gallery is by a step-ladder, likewise on the outside. The external studd-work walls and roof are covered with very small wood-shingles, which in appearance when laid on, resemble the scales of a coat of mail. Each house has a large stove, contrived to diffuse warmth around, and to answer all the purposes of cooking. Near this stove, in some cottages, which is generally handsome, and always kept bright, is a small staircase leading to the second floor. The windows extend in horizontal length along nearly all the breadth of the end walls, and occasionally so in the front walls; they are formed of small, square quarries of glass set in wood casements.

Thus, where there are fine woods, the architecture of the houses is not only ingenious but fancifully picturesque. In the canton of Glarus, the houses are built of wood on stone terraces, large, solid, and compact, with great penthouse roofs, hanging very low, and projecting from six to eight feet beyond the foundations, supported on carved brackets, and covered with oak shingles. They have each a gallery and staircase on the outside, or rather step-ladders to ascend to the upper story. The peculiar structure of these roofs is of use to keep off the snow, which, though Switzerland is a mild country, yet it lies constantly upon the tops of the glaciers, and at times rushes down the mountains in a frightful and terrific manner.*

* Of the Swiss towns, Schaffhausen is one of the most ancient; the site is healthy, the streets mostly broad, and the houses have polygonal projecting bay-windows; the fronts are also ornamented on the outside with paintings, and have in addition, as well as the name of the proprietor, that of the architect, and date when built. At Lucerne, the mill bridge, which is a covered structure, built in 1403, is very remarkable; here are thirty-six paintings, representing the Dance of Death, copied by Melager. Chapel Bridge, sixteen hundred feet long, and built in 1303, is ornamented with one hundred and fifty-four paintings, nine of which are historical, the others pretend to relate to passages in the lives of St. Leger and St. Maurice, the patrons of the town. And the Hof-Bridge, fourteen hundred feet long, also covered and decorated with two hundred and thirty-eight paintings of subjects from the Old and New Testament.—(My Note Book.)

The châlets are small huts among the Alps, which frequently appear on the hills, erected for the cowherds and their families, and as nightly shelter for the cattle. The walls are of rough stone, and about four feet high; the superstructure is of fir-poles and feather-edge boards; some are constructed wholly of poles, laid on each other horizontally, and fastened at the ends. The interior is divided into two apartments, one for the family, and the other for the cattle; but all the partition between them is a cratch, raised about eighteen inches only from the ground. To this the cows are tied, and over them they thrust their heads into the room where the family are sitting, in order to share their fire, and to partake of their society. Such fellowship has man with beast in a pastoral state, and so accustomed does the beast become to the domestic life of man, as to occasion the Poet to observe—

"Men mix with beasts, joint-tenants of the shade."—GOLDSMITH'S *Traveller.*

SWISS CHAIRS.

SWISS TABLE.

SWISS FURNITURE.

Swiss furniture is of two kinds, one appropriated for the cottage, the other for the château: we shall here confine our description to the latter, which has been found in the house of a celebrated character. At Morat, in Switzerland, in the chamber which Jean Jacques Rousseau occupied, there still remains the furniture as he left it; there is the bed on which he slept, the chair on which he sat, the table on which he ate, and the one on which he wrote. The chairs have wreathed backs and turned legs, with balls at the top at each side. The bedsteads are low, of the half-tester kind, and with posts turned in beach-wood, and placed in recesses, which have folding-doors to shut up by day like a cupboard. The tables are here some oblong and others round, supported with pillar and claws, others have four turned legs. At Geneva, the furniture in the inns is of the most simple form, the rooms small, and without an antechamber.—(M. Valery's Travels in Switzerland, p. 2.)

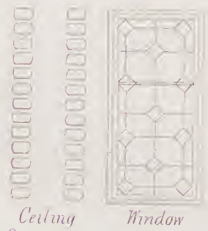
SWISS GARDENS.

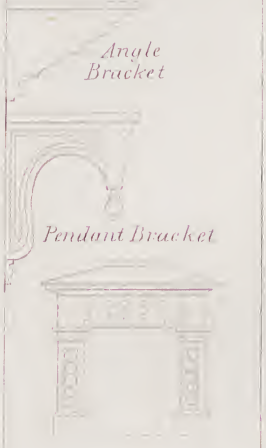
"Nature," observes Hirschfeldt "has been liberal to the inhabitants of Switzerland: almost all the gardens are theatres of true beauty, without vain ornaments or artificial decorations. The château gardens excel in rustic buildings and arbours, and are for the most part a mixture of orchards on hilly surfaces, cultivated spots, and rocks. A taste for flowers is very popular in Switzerland, and which is particularly displayed on the occasion of the birth of a child. When the news is carried about to all the relations and friends of the family, the maid is dressed in her best attire, and carries a huge nosegay of the finest flowers the season affords." Botany, says Mr. Martin, (L'Hermite en Suisse) is a favourite study among the Swiss, and rearing flowers a common pursuit, and, excepting Holland, says Meinster, (a native of Zurich,) I doubt if there be elsewhere a town where rare indigenous and exotic flowers are so diligently cultivated, the Rhododendron ferrugineum thriving here in some places, but not so common as in Maryland. (See Mrs. Trollope's America.) The mountain-ash, with its clustering scarlet berries, grows on the slopes; the birch flourishes in the rocky crevices and heights of the pleasure-grounds, and the chestnut blooms beside the streams. Gardens, in which are masses of rock, over which water is seen to trickle, belts and groups of firs on the summits of the high ground, some of immense size, and in the near view graceful festoons of grapes, in the garden; cherries and other fruit-trees in the orchard; apple-trees as well as on the mountain-side: all these abound in Switzerland.

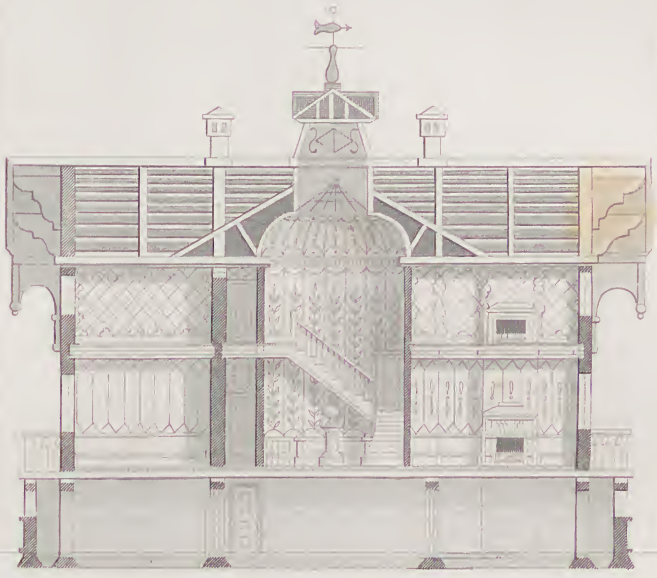
SWISS SCENERY.

A panorama more truly astonishing than Switzerland, no other part of the globe presents; it exhibits so surprising a diversity of landscape, interesting and ever new in their features. Nowhere do such extremes meet as in Switzerland, where eternal Alpine snows are fringed by green and luxuriant parterres, where enormous icebergs rise above the valleys, breathing aromatic scents, and blest with an Italian spring, and where the temperature of each zone alternately reign within two or three leagues. The Swiss scenery is allowed by all travellers to be the most diversified, the most picturesque, grand, and terrific in the world. The cloud-capt Alps, rising at several hundred feet, from which avalanches fall, rushing down the ravins, will travel from six to seven miles, burying houses, fields, and cattle; glaciers on each side, and precipices, crested with firs, and disjointed rocks, over which water is leaping downwards, and foaming into the abyss below, producing the most sublime effect on the mind of the traveller. Another traveller has sketched the Pays de Vaud in the following terms, "Nothing can surpass the glowing magnificence of a summer's evening in this fairy region. When the sun descends beyond Mount Jura, the Alpine summits reflect for a long time the bright ruddy splendour, and the quiet lake, unruffled by a breeze, assumes the appearance of liquid gold. In the distance rises the vast chain of Alps, with their seas of ice and boundless regions of snow, contrasted with the near and more pleasing objects of glowing vineyards and golden corn-fields, and interspersed with the wooded brow, the verdant and tranquil valley, with white villas, hamlets, and sparkling streams."

SWISS COTTAGE, SECTION AND DETAILS.







TRANSVERSE SECTION

CHAMBER PLAN

T. Brown Archt.
Engraved by H. Adlard
LONDON PUBLISHED BY JOHN WEALE 59 HIGH HOLBORN

A FRENCH SUBURBAN CHATEAU.

PLATE XXVII

Scale of 10 5 0 10 20 30 40 50 Feet

ELEVATION.

GROUND PLAN.

P. Brown Arch.t

Engraved by H. Adlard

LONDON PUBLISHED BY GEO. VIRTUE, 26 IVY LANE.

PLATE XXVII.

A FRENCH SUBURBAN CHATEAU.

"I praise the Frenchman, his remark was shrewd,
How sweet! how passing sweet is solitude!
But grant me still a friend in my retreat,
Whom I may whisper Solitude is sweet;
Yet neither these delights, nor aught beside
That appetite can ask nor wealth provide,
Can save us always from a tedious day,
Or shine the dulness of still life away."—COWPER.

THE name château, a mansion of the old noblesse, implies a castellated edifice, but the modern French have abandoned their frowning aspect.* These residences are not so generally seated over France as the villas in England: they are mostly to be seen in the south of France, and near the environs of Paris. Amongst those the most beautiful is that which was inhabited by the late Duke de Berri; it stands on the borders of the Bois de Boulogne, and near the banks of the Seine, about four miles from Paris. It was built for the Count d' Artois, by Bellenger, whose designs unite at once grandeur and grace. Three court-yards lead to the pavilion, from the innermost of which a flight of steps conducts to the grand entrance, splendidly embellished with columns. The saloon is ornamented with bass-reliefs. On the left of this apartment is the bathing-room, fitted up in the most useful manner; the second apartment is a boudoir. The mansion also contains a handsome billiard-room. The furniture of the sleeping apartments is completely *en militaire*, consisting of trophies and every attribute connected with war: the inscription on the portal gives the true character of the place, *Parva sed apta*. The different windows present the most enchanting views in every direction, comprising the windings of the Seine, the Abbey of Longchamps, the Bridge of Neuilly, and the Valerian Mount.†

Bellevue.—Walking on the banks of the Seine, Madame de Pompadour was so struck with the noble prospect which this spot affords, that she immediately determined to erect a château here, and make it her favourite residence. Louis XV., enchanted with the delightful situation of the place, prevailed on her to yield it to him. The architecture of this building is elegant and grand. Nothing can exceed the beauty of the winter saloon: the park and gardens are tastefully laid out. The prospect to the north has little to be compared to it in the environs of Paris. Plains and woods, hills and villages, are most agreeably interspersed. Paris and the Bois de Boulogne form an admirable contrast. The Seine, which, with beautiful meanderings alternately appears and disappears from the view, seems to return from the remotest distance to water the hills of Bellevue. All that is enchanting in nature and in art is combined to embellish this delightful retreat.

FRENCH GARDENS.

The French gardens always delight by the variety and beauty of the objects which they present; temples, grottos, busts are scattered with tasteful profusion, and nothing is wanting to complete the scene. At Annanville, the park, which contains about three hundred acres, is beautifully diversified with groves, lawns, cascades, and sheets of water. The appearance of the village here is admirable, being a panoptican; all the streets centre in a spacious lawn, ornamented by a noble fountain. But as the French furniture may be seen described in their publications, there is no need for doing so in this place.—(A.)

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* "Ausby never completed that part of his Vie Privée des Français, which was to have comprehended the history of Domestic Architecture. Villoret has slightly noticed its state about 1380, t. ii. p. 141, but no considerable dwellings are mentioned before the reign of Charles VII., and very few of so early a date. Chenouçeaux in Touraine, was built by a nephew of Chancellor Duprat; and Gaillon, in the department of Eure, by Cardinal Amboise, both of the beginning of the sixteenth century: these are considered among the most ancient houses in France. A rare work by Ducercease, (les plus excellens de France, 1607) gives engravings of thirty houses, but with only one or two exceptions, they seem all to have been built in the above century. Even in that age, defence was considered an object in constructing a country mansion. The name of château was, therefore, not retained without meaning. It is obvious, that the long calamities which France endured before the expulsion of the English, must have retarded this eminent branch of national improvement."—(Hallam.)

† Tour through France in 1822.—(Author.)

PLATES XXVIII.—XXIX.—XXX.

AN EGYPTIAN PAVILION.—ABOUL'S PALACE.

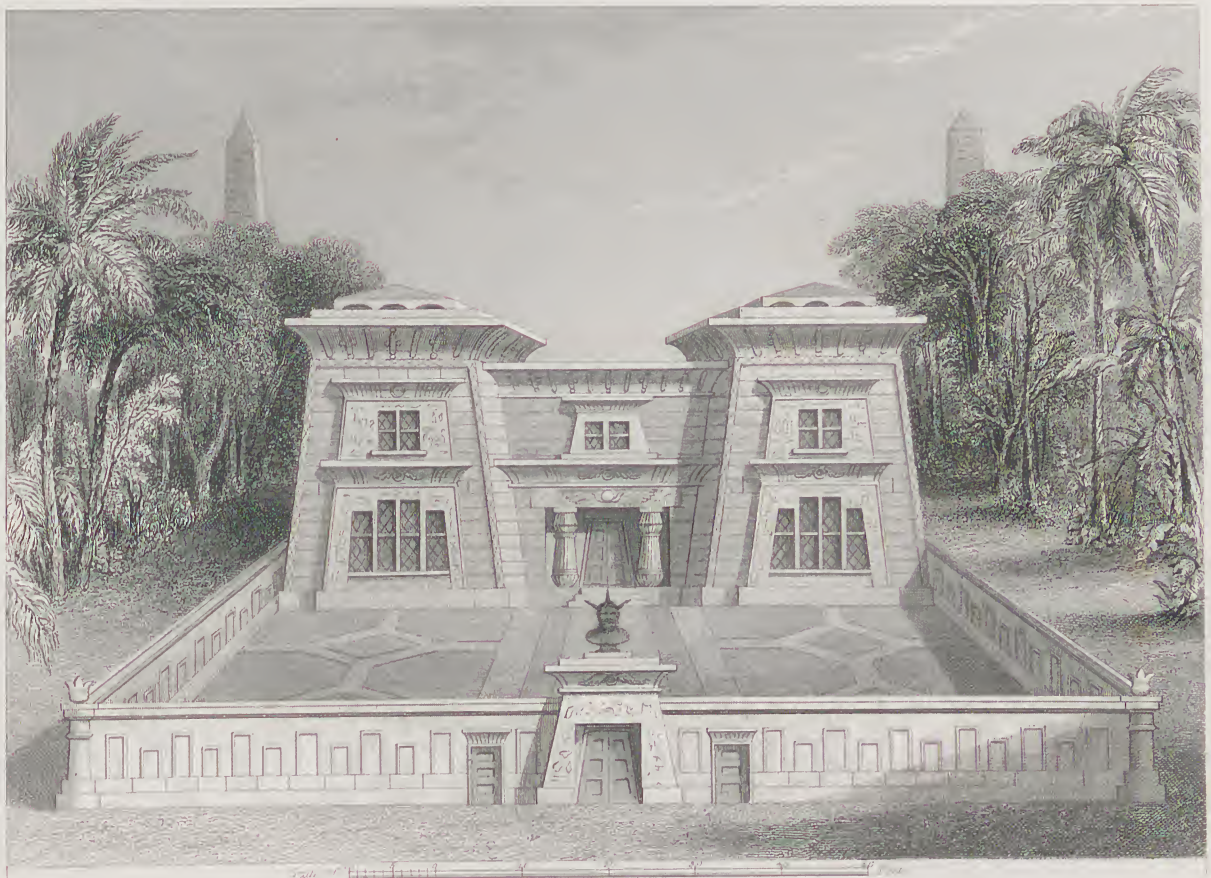
"The palaces of the ancient Pharaohs, in all probability, was like that of Medinal Aboul's, which was in its plan an oblong square, divided into three compartments. The first was a court, the second another court, with a piazza on the four sides like cloisters, formed with four rows of columns, which were necessary to protect persons from the rays of an almost vertical sun. The windows were of rectangular squares; others were narrower at the top than at the bottom; there were upper stories in the palace, and a staircase leading thereto; the apartments had small doors, and very solid balconies towards the cortile or inner court, supported by kinds of caryatides. The banqueting-room or state apartment in the interior resembled the nave part or cloisters of a cathedral of the middle ages. The mass of lofty, dead wall around the interior of the palace, was relieved by bass-relief and colossal figures. The surrounding exterior wall was embattled with shields, and against the palace was a hippodrome or stadium."—DENON'S *Egypt*.

THE ancient Egyptians, according to the sculptures on the tombs, had their country pavilions in the midst of gardens, but the mode of laying out the house and grounds varied according to circumstances; some pavilions were of considerable extent, and besides the arable land belonging to them in the rear, the gardens as well as the offices and other buildings attached to the residence occupied a very large space. Some country-houses appear to have been ornamented with propylæa and obelisks, like the temples themselves; it is even possible, that part of the building may have been consecrated to religious purposes like the domestic chapels in other countries; since we find in the sculptures a priest engaged in presenting offerings at the door of the inner chamber. And, indeed, were we not convinced to the contrary by the presence of women there, the form of the gardens and the style of the porch, we should feel disposed to consider this a temple rather than a place of abode. The entrances of large pavilions were generally through folding-gates, standing between lofty towers, as in the propylæa of temples, with a small door on each side; and others had merely folding-gates with imposts surmounted by a cornice. A circuit wall extended round the premises; but the courts of the house, the gardens, the offices, and all the other parts of the pavilion had each their separate inclosure. The walls were usually built of crude brick, baked in the sun, and in damp places, or when within reach of the inundation, the lower part was strengthened by a basement of stone. They were sometimes ornamented with panels and grooved lines, (Vide annexed Plate XXVIII.,) generally stuccoed, and the summit was crowned either with Egyptian battlements, the usual cornice, a row of spikes, in imitation of spear-heads, or with some fancy ornament. The casinos belonging to the kings, which stood on the high road, where they were accustomed to pass either in their hunting or military expeditions, were small and simple, being only intended for their reception during the short stay of a few days. Those, however, in provinces at a distance from Egypt, were of very large dimensions, and had probably all the conveniences of spacious pavilions, like those erected in latter times by the Ptolemies on the confines of Abyssinia

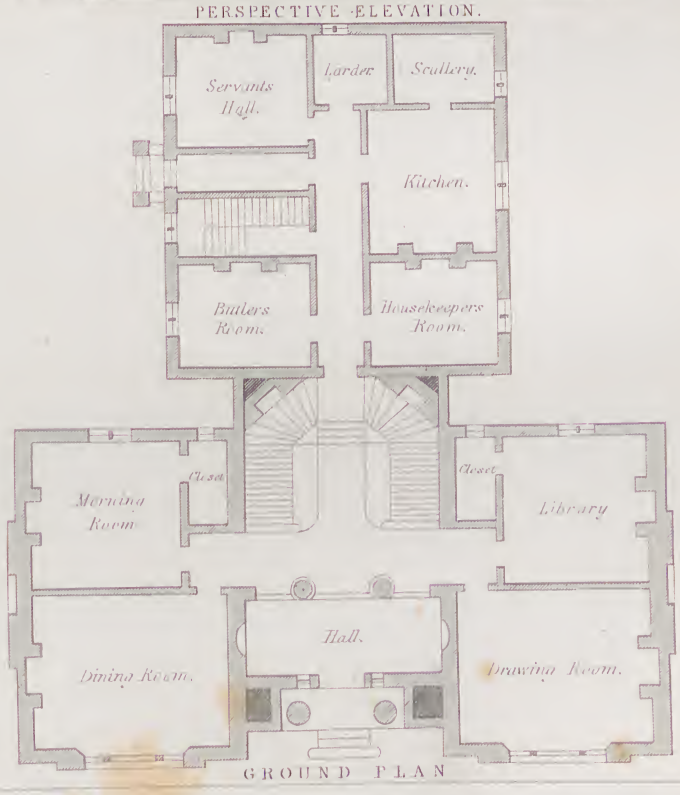
In order to give an idea of the extent of some of their larger pavilions, it will be necessary to describe the plan and arrangements of the different parts. After passing the outer door of the right wing, you entered an open court, with trees extending quite round a nucleus of inner apartments, and having a back entrance communicating with the garden. On the right and left of this court were six or more store-rooms, a small receiving or waiting-room at two of the corners, and at the other end the staircases which led to the upper story. Both of the inner façades were furnished with a corridor supported on columns, with similar towers and gateways. The interior of this wing consisted of twelve rooms, two outer and one centre court, communicating by folding-gates, and on either side of this last was the main entrance to the rooms on the ground-floor, and to the stair-

AN EGYPTIAN PAVILION.

PLATE XXXII.



PERSPECTIVE ELEVATION.



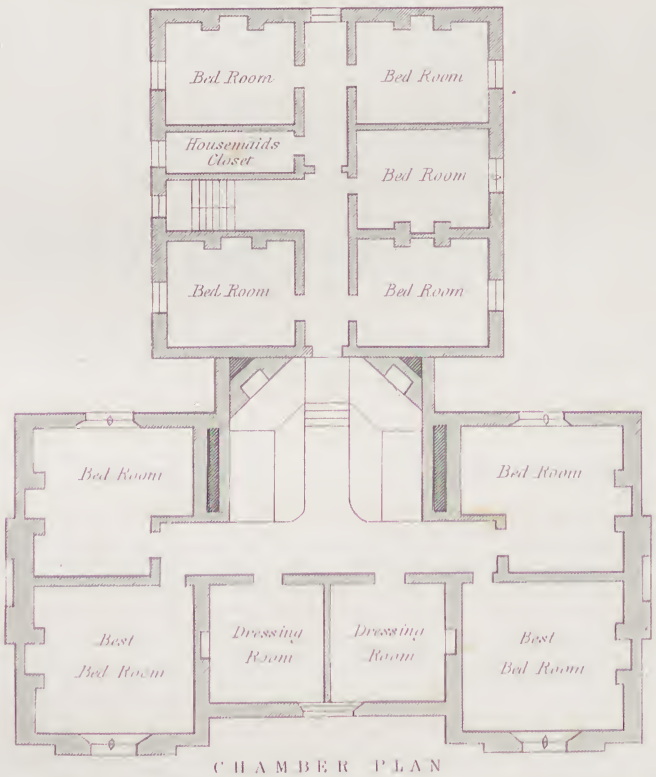
GROUND PLAN.

EGYPTIAN CHAMBER PLAN, AND SECTION.

CONJUGATE SECTION.

Scale of 10 5 0 10 20 30 40 50 Feet

Scale of 10 5 0 10 20 30 40 50 Feet



CHAMBER PLAN

R. Brown, Arch.

Engraved by [illegible]

LONDON PUBLISHED BY [illegible] LANE.

case leading to the upper story. At the back were three long rooms, and a gateway opening to the garden, which contained a variety of fruit-trees, a small summer-house, and a tank of water. The arrangements of the left wing were different: the front gate led to an open court, extending the whole breadth of the facade of the building, and backed by the wall of the inner part. Central and lateral doors thence communicated with another court, surrounded on three sides by a set of rooms, and behind it was a corridor, upon which several of the chambers opened. This wing had no back entrance, and standing isolated; the outer court extending entirely round it, and a succession of doorways communicated from the court with different sections of the centre of the house, where the rooms arranged, like those already described, around passages and corridors, served partly as sitting apartments, and partly as store-rooms.

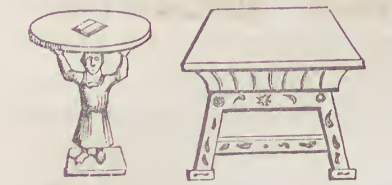
The houses in the cities varied, of course, in size as well as plan; but judging from the ruins that remain, the streets were laid out very regularly, nor does there appear to have been the constant mixture of large houses and low hovels in Egypt, as is so frequently met with in eastern towns. However, as is usually the case in hot climates, many of the streets were narrow, and few, except the principal ones, were large enough to allow the passage of a chariot. In Thebes it is probable they were on a somewhat larger scale, and proportionate with the increased size of the houses, some of which, even in the early age of its founder, are said to have been four or five stories in height. (Diodor. i. 45.) Houses of a small size in the provincial towns were usually connected, and formed the continuous sides of streets; they rarely exceeded two stories, and many of them consisted only of a ground-floor and an upper set of rooms. Nor, indeed, judging from the sculpture, do the Egyptians appear to have preferred lofty houses, and, as in modern Egyptian towns, the largest seldom had more than three stories. Those of the rich citizens frequently covered a considerable space,* and presented to the street either the sides of the house itself, or the walls of the court attached to it. Their plans were regular, the rooms being usually arranged round an open area, or on either side of a long passage, to which an entrance-court led from the street. The court was an empty space, considerably larger than the Roman impluvium, probably paved with stone, or containing a few trees, a small tank or a fountain in its centre, and sometimes, though rarely, a flight of steps led to the main entrance from without. A court was common to several houses; and again, some of the large mansions stood detached, and had the advantage of several doors of entrance on two or three different sides. They had a portico or porch before the front door, (Janua,) supported on two columns, below whose capitals were attached on certain occasions ribbands or banners; the name of the person who lived there being occasionally painted within on the lintel or impost of the door, and sometimes the portico consisted of a double row of columns, between which stood statues of the king. On entering by the porch, you passed into an open court (aula) or hall, containing a mandara, or receiving-room for visitors. The arrangement of the interior was much the same on either side of the court; six or more chambers, whose doors faced those of the opposite, set open on a corridor, supported by columns on the right and left of the area, which was shaded by a double row of trees.

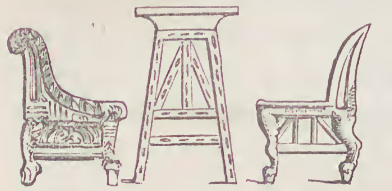
* At one period the plans of the houses were regulated by the priesthood, who censured, as the offspring of arrogance and impiety, all unnecessary prodigality and worldly display of riches. They taught the people, that their stay in this world was of short duration; that their present abodes were only inns, at which they reposed during their earthly pilgrimage, as Jacob said to Pharaoh, "The days of my pilgrimage are an hundred and thirty years." (Gen. xlvii. 9.) And that their tombs alone could be considered as everlasting habitations, which it was a religious duty to adorn, (Diodor. loc. cit.) but the temples of the gods, the palace of the king, and the abodes of their pontiffs, comprehended within the same precincts which protected their sacred persons, and commanded the respect of the people, were adorned with all that mysterious art could devise, and despotism compel men to execute.—(Wilkinson's Ancient Egyptians.)

EGYPTIAN FURNITURE.

The apartments appropriated to the reception of their friends, were sometimes on the ground-floor, at others on the first story; and the party usually sat on handsome chairs and fauteuils, each like the θρόνος of the Greeks, each containing one person. They occasionally used stools and low seats, raised very little above the ground, and some sat cross-legged or on one knee upon mats or carpets, but men and women were generally apart, though apartments in the same room. While conversing, they did not recline upon divans, like the eastern people at the present day, nor did they, like the Romans, lie in a recumbent position, supported by the left elbow, (Conf. Hor. i. Od. xxii. 8. "Et cubito remanete presso,") on a triclinium or couch during meals, though couches and ottomans formed part of the furniture of an Egyptian saloon. Most of the chairs and stools were about the ordinary height of those now used in Europe, the seat nearly in a line with the bend of the knee, but some were very low, and others afford that variety of position which we seek in the kangaroo chairs of our own drawing-rooms. The ordinary fashion of the legs was in imitation of those of some wild animal, as the lion or the goat, but more usually the former, the foot raised and supported on a short pin; and what is remarkable, the skill of their cabinet-makers, even in the early era of Joseph, had already done away with the necessity of uniting the legs with bars. In many of the large fauteuils a lion, as the throne of Solomon, formed an arm on either side, but the back usually consisted of a single set of upright and cross-bars, or of a frame receding gradually, and terminating at its summit in a graceful curve, supported from without by perpendicular bars, and over this was thrown a handsome flowered pillow of coloured cotton, painted leather or gold and silver tissue, like the beds at the feast of Ahasuerus, mentioned in Esther, or like the feathered cushions covered with stuffs, and embroidered with silk threads of gold in the palace of Scaurus. The Egyptian tables were round, square, or oblong; the former were generally used during their repast, and consisted of a circular flat top, supported like the monopodium of the Romans on a single shaft in the centre, or by the figure of a man, intended to represent a captive. Large tables had usually three or four legs, but some were made with solid sides, broader at the bottom than at the top, and though generally of wood, many were of metal or stone, and they varied in size according to the purposes for which they were intended. Their bedsteads were made in wicker-work of gereet or sticks of the palm-branch, and are known by the general name of kaffass; each side consists of a number of upright bars, which pass through three rods at right angles, with them the upper and lower one forming the edge of the frame-work. The summit on which the bed is placed is constructed in the same manner with transverse gereets, and in the centre is a small mass of them in closer order, intended more for ornament than for use; and the usual dimensions of these bedsteads are about seven feet by three and a half, from one foot to two feet in height. The pillows were of wood hollowed for the head, and made of sycamore. Wooden, and, perhaps also, bronze bedsteads may have been used by the wealthier classes of the ancient Egyptians.—(Wilkinson's Manners of the Egyptians.)

TABLES.





FAUTEUIL. WASH-STAND. CHAIR.

EGYPTIAN GARDENS.

The pavilions of the Egyptian grandees seem generally to have had a garden attached to them, but the mode of laying them out was as various as that of their houses; but in all cases they took care to have a lake or reservoir of water, as well for the purpose of irrigation as for beauty, in the centre, on whose surface floated the elegant blossoms of Nymphæos and other aquatic plants. The large gardens were usually divided into different parts, the principal sections being appropriated to the date, pomegranate, and Cruciferæ Thebesa (or Theban palm,) besides the vineyard and orchard. The flower-garden was intersected by walks shaded with rows of various trees, and trimmed into shape in the topery style of art. The vines displayed much taste, being trained over rafters, (as at the present day in Upper Egypt,) supported by low columns, which formed a series of shady avenues, and afforded at the same time great facility in gathering the ripened clusters. It appears from the sculptures on the tombs at Thebes, that the principal inhabitants had not only extensive gardens attached to their mansions, but farms without the city.—(Ibidem.)

EGYPTIAN SCENERY.

The scenery in Lower Egypt is, in general, monotonous; the country flat, the soil sandy, and seldom has any rain, the country being overflowed by the river Nile at stated periods; the sky is, therefore, generally of a clear deep blue. Of the trees of ancient Egypt, the most noted and numerous are the sycamore, peach, olive, persia, the palma Christi, or cici, a certerbery tree. The acacia tree, from which the gum Arabic is obtained, Sont or accanthus, neby, Monkhayte Charoob or locust tree, and several others. The sycamore is frequently represented in the tombs of Thebes, and is also mentioned as a native Egyptian tree by Pliny and other authors. (Ancient coffins and figures of sycamore wood are very common on the tombs.*) Of the fig, one species is still indigenous in the desert of Egypt, and the pomegranate is not only seen in the oldest sculptures at Thebes, but is alluded to in sacred writ, (Num. xx. 5.) and by several profane authors as a native of Egypt.

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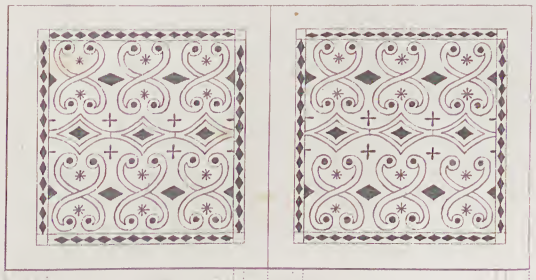
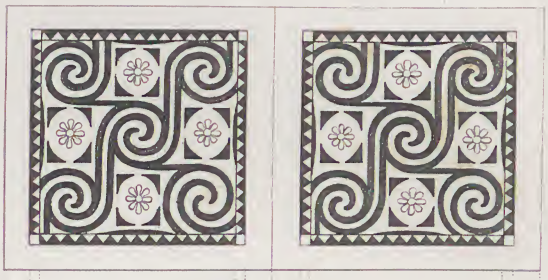
*. The sycamore was used by the Egyptians for coffins in preference to all other wood, on account of its extreme durability. There are mummy-cases now to be seen in the British Museum, not less than three thousand years old, bandaged together.—(R. B.)



ORNAMENTAL CEILING.



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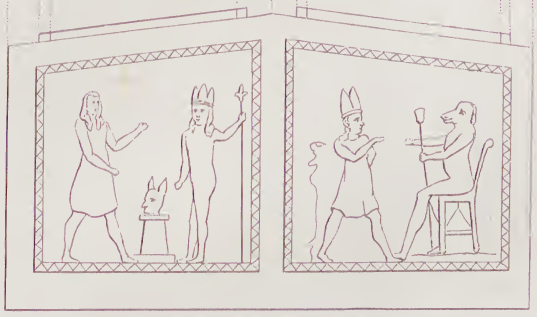
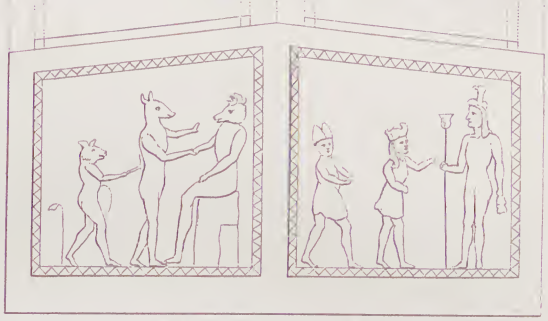
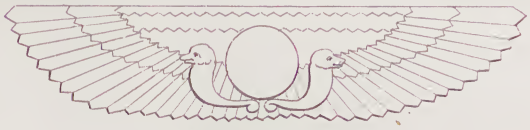


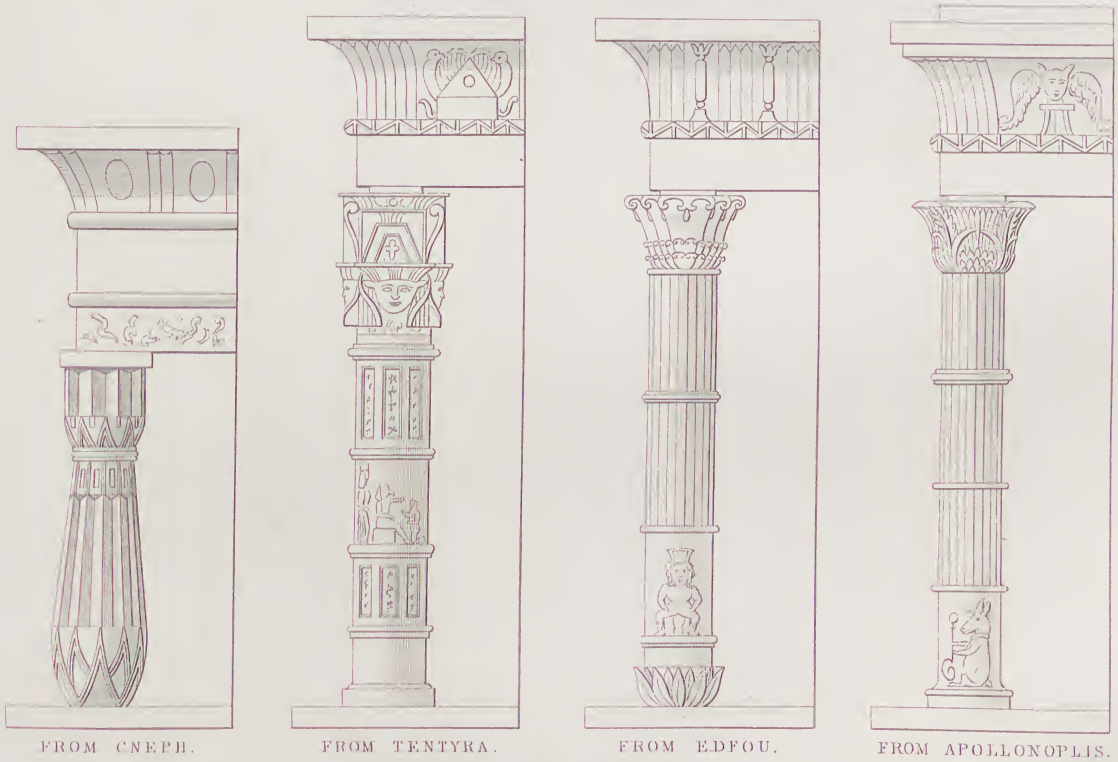
HIEROGLYPHIC WALL.



HIEROGLYPHIC WALL.



WINGED GLOBE.



FROM CNEPH. FROM TENTYRA. FROM EDFOU. FROM APOLLONOPLIS.

EGYPTIAN ORDERS.

LONDON, PUBLISHED BY GEO. VIRTUE, 26, IVY LANE

A GRECIAN VILLA.

PLATE XXXI

PRINCIPAL FRONT

PRINCIPAL PLAN

Scale of 10 6 0 10 20 30 40 50 60 Feet

Engd by H. Adlard

PLATES XXXI.—XXXII.—XXXIII.

A GRECIAN VILLA.—ALCINOUS'S PALACE.

"The front appeared with radiant splendour gay,
Bright as the lamp of night, or orb of day;
The walls were massy brass, the cornice high,
Blue metal crowned in colours of the sky;
Rich plates of gold, the folding-doors incase,
The pillars silver, on a brazen base.
Silver the lintels, deep projecting o'er,
And gold the ringlets that command the door.
Two rows of stately dogs, on either hand,
In sculptured gold, and laboured silver stand;
These Vulcan formed, with art divine to wait,
Immortal guardians of Alcinous' gate.
Alive each ornamented frame appears,
And still to live beyond the power of years.
Four thrones within, from space to space were raised,
Where various carpets with embroidery blaz'd.
Refulgent pedestals the works surround,
Which boys of gold, with flaming torches crown'd,
The polished ore reflecting every ray,
Blazed on the banquet with a double day."

HOMER'S *Odyssey*, Book vii.

GRAND and magnificent as their public edifices were, the domestic dwellings of the citizens of Athens were mean, even at the time of their greatest wealth; they were built of unburnt bricks and stuccoed, and some of them ornamented in antique fashion, like Phocion's house in Melita, with copper filings.* There is, however, no remains of a Greek villa now existing. Sir William Gell supposes the house or palace of Ulysses (which is hypothetical) had before it in front a paved terrace, and an inclosed court, whose walls surrounded the palace; and that in the wall of the court were well-wrought doors opening into colonnades; the first being the apartments of the domestics, and the triclinium or eating-rooms, in daily use. This division of the house was called gynæconitis, or the gynæceum, women's chamber, being at the farthest end of the house (Corn. Nep. Vitr. Rous, p. 200). The south portico, according to Wilkins, was the andronitis or men's apartments; the cyzicene oiscus, or splendid dining-room, some named from Cyzious, a town celebrated for magnificent buildings; and pinacotheca, usually rendered a picture-gallery. In the eastern side was the bibliotheca or library, and on the western side was the exedra or place of conversation. The thalamus and antethalamus were rooms and courts, or cortiles, called mesaulæ: in this house they could live in private, distinctly from the family. There was also the parthenon, the rooms for the girls in the most distant part of the house, locked and bolted; for sometimes they were not permitted to pass from one part of the house to another without leave. Some accounts say, that the Oicos contained large ample rooms where the feasts were made, to which women were not admitted to sit at table with the men.

According to Homer, in his age, every rural villa of the richer Athenians had agricultural appendages. First, the farm-court, around which were the stalls for the cattle, then followed the paved court, which was a sort of forecourt before the house, and in which there was often a fountain. This court was surrounded by the rooms for the guests, the chambers, and the store-rooms, and in the centre stood the altar of Ζεὺς Ἑρκεῖος, protecture of inclosures. Out of this court was a flight

* Heinrich's Public and Private Life of the Ancient Greeks, p. 308.—(A German writer.)

of steps, and then a vestibule or passage leading into the hall of the men, which was more in the interior. The floor was cement, hard trodden down. At the extremity, and separated again by a flight of steps from this hall was an apartment, at the door of which Penelope shewed herself when she spake with the rivalling suitors, on the threshold of which Metamira, the wife of Celeus (Themistocles) is sitting with her child when she receives the goddess. This part of the house, which was accessible only to the women and their kinsmen, was the scene of the whole existence of the former Private rooms, and (μυκῶσθαλᾶμων) the nuptial chamber, formed a part of it. A side court, which was a thoroughfare, and accessible from the passage to the great hall of the men, served as a passage to the interior of the house, without approaching to the apartments of the guest. From this court also a flight of steps led to the upper chamber of the master: another court within this, adjoining the women's apartment, and inclosed from all others, was exclusively devoted to their use, and adorned with trees and shrubs. Steps led from it to the upper apartments, in which the women carried on their engagements of embroidery, weaving, and spinning, and other household works. The larger rooms, such as the men's hall, had flat roofs, supported with large beams running across, resting on pillars, and the walls on either side. Wainscotting with inlaid work, often as in Menelaus's house, of costly materials, covered the walls, and in the space between the beams. Plates of metal fixed in the wainscot, traces of which were found in the treasury of Atræus, and the rare splendour of many coloured marbles, which travellers have met with in the oldest buildings, afford us some explanation of the astonishment which seized Telemachus in the palace of Menelaus. (Od. iv. 72.)

Hearths of masonry (ισχαρας) served to warm the sitting-rooms: in the halls of entertainment portable-lamps were placed. (Od. xviii. 306.) The space in front of the house and of every door, whether in the open air or forming a part of the dwelling, is called by Homer πρῶθυροι πρόδομος. Here the chariots or other wheeled vehicles drew up, and here a number of household affairs were carried on. It is remarkable, that, according to Voss's acceptation, (derived from Od. vi. 15.) Nausica inhabited a room immediately adjoining the second fore-court, and that consequently in the Homeric age, there was as yet no indications of depravity. Locked-up apartments, in which the young maidens of a later and more corrupt age were guarded, were not common or known. Women were not forbidden by the manners of that time, (as afterwards) to show themselves to men; though it was thought decorous to appear attended by female slaves, as we find in the passage, in which Penelope, the model of all womanly grace and dignity, first appears before us, when she hears the song of Phemius, (Od. i. 333,) and again, when she brings the bow of Ulysses (Od. xxi. 64). Even noble virgins were suffered to go abroad without escort, as, for instance, the daughters of Celeus Nausica to the fountain with the linen, without any male protector, (Od. vi. 77). Helen forms the exception to the general rule, when she goes with Deiphobus, a stranger, to look at the fatal horse, which deceptive animal accomplished the destruction of Troy.

GREEK FURNITURE.

Homer says in the Odyssey i. 4, that the house of Nestor had tables, chairs, beds, and carpets; and the ivory, gold, and amber displayed in the furniture of Menelaus, was sufficient to strike amazement; bedsteads of gold, silver, and ivory. Herodotus (Clio. i. 49,) explains to us the use of the precious metals; and also by mentioning couches, embossed with gold and silver. The bedstead of Ulysses was adorned with gold, silver, and ivory. (Odyss. i. 120. v. 149. 22. v. 421. 13.) The bedstead of Priam, king of Troy, was most gorgeous, having the posts of plated gold, and many with spoils, (Virgil's Æneid, Book ii. 285) goose feather-beds and pillows of the same, sheep or lamb's-skins for blankets. Plutarch mentions beds at Lacedæmon stuffed with reeds, mixed in winter with a soft and downy thistle: the poor slept upon mats or beds filled with leaves. (Plut. Dæm. Soor.) Lycurgus, in his laws, ordered that his subjects which were of an equality, should sleep on no

A GRECIAN VILLA.

PLATE XXVII

POSTERN ELEVATION.

LONGITUDINAL SECTION.

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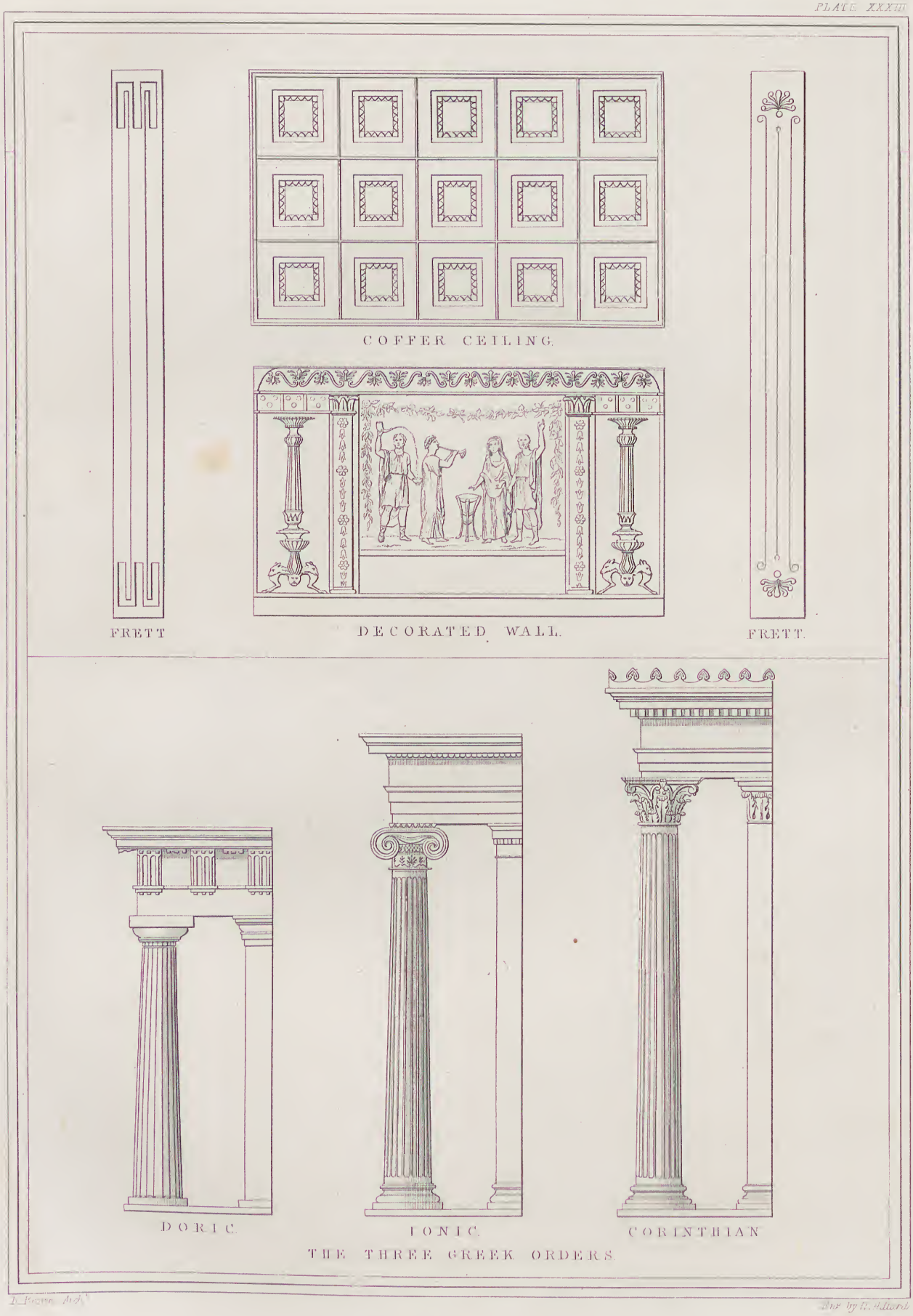
GREEK COLUMNS, DECORATED WALL, AND COFFER CEILING.

PLATE XXXIII



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better beds than rushes, which themselves should gather." (Mitford's Greece, vol. i. p. 310.) Some beds were like our sofas, and placed in a recess. The Greeks had sofas, footstools, chairs, candelabras, lamps, tripods, and vases in great number and of various fashions. Their table-tops were supported by a simple stand, consisting of one or more feet of ivory or other materials, and carved into the form of a lion, tortoise, or other animal, or of a hero, and then called Alas, Telamon, &c. In the houses of the poor this pedestal was of stone. From Pindar's mentioning the heroes sitting round the noble board, it appears that a large round table was rather meant than a long one. It is clear, however, that there were tables with a single foot or pillar, (Monopodia) with two feet (bipeds) and with three tripods. In the early ages the tables were made of wood, and polished with art, but in the latter ages were adorned with plates of silver or other metals. Evelyn, in his Sylva, speaking of the Tigrine and Panthering tables, so called from the sports on them, says, that King Juba's table was sold for 15,000 sesterces, and that the Mauritanian Ptolemy was far richer, which was four and a half feet in diameter, three inches thick, and reported to have been sold for its weight in gold. So luxurious were the ancients in this piece of furniture, that when the men at any time reproached their wives for their expensiveness in trinkets, they were wont to turn the tables upon their husbands, whence, says Rous, came the proverb. The effeminate Asiaticisms of lying upon beds, (or rather sofas) at dinner, was introduced before 548, B.C., for it is mentioned in the account of the feast of Clisthenes by Diodorus. The Dorians of Crete continued to sit, but those of Sparta adopted the custom of lying at first only upon hard benches, without cushions. (Mullin's Dorians, ii. 290.) There is nothing in either authors or monuments which clearly showed the use of curtains, but from the word *πωνοποδα;* tent-beds have been ascribed to the Greek, whereas *πωναχ* means a gnat or musquito; and the descriptive conopœum of Juvenal was a tester attached to cradles, to screen infants from being stung. The Delphine editor of Suetonius, (Aug. c. xxviii.) adds, that curtains were invented to save the trouble of an attendant with a fly-flapper, as mentioned by Terence, (Evn. Act iii. c. 5.) Of dinner-beds we have further from Homer :—

GRECIAN SIDE-BOARD.

GRECIAN CHAIR AND COUCH.

"On chairs and beds, in order seated round,
They share the gladsome board; the roofs resound."—(Odyss. b. xxiv.)

GREEK GARDENS.

Mr. Mason considered gardening in Greece rather as a neglected art, notwithstanding the progress of the sister art of architecture, which gave rise to the remark of Lord Bacon, that, "When ages grew to civility and elegance, men came to build stately, sooner than to garden finely, as if gardening were the greater perfection." In the account of their public gardens, by Pausanias, we learn, that they were the resort of the philosophers of Athens, and highly elegant, and decorated with temples, altars, statues, monuments, tombs, and prospect-towers; that among the tombs were those of Pentheus, Theseus, Œdipus, and Adrastus; and at the entrance was an altar dedicated to Love. They were laid out in shady groves, with gymnasia, or places of exercise, and philosophic walks; the objects chiefly aimed at, were shade, coolness, freshness, breezes, fragrance, and repose. Homer has given us an account of Alcinous's garden: *—

"Close to the gates a spacious garden lies,
From storms defended and inclement skies;
Four acres was the allotted space of ground,
Fenced with a green enclosure all around.
Tall thriving trees confessed the fruitful mould,
The reddening apple ripens here to gold;
Here the blue fig with luscious juice o'erflows,
With deeper red the full pomegranate glows,
The branch here bends beneath the weighty pear,
And verdant olives flourish round the year.
The balmy spirit of the western gale,
Eternal breathes on fruits must ought avail.
Each dropping pear, a following pear supplies,
On apple apples, figs on figs arise,
The same mild seasons cause the blooms to blow,
The buds to harden, and the fruits to grow.
Here ordered vines in equal ranks appear,
Without th' united labours of the year;
Here grapes discoloured, on the sunny side,
And there, in autumn's richest purple dyed,
Beds of all various herbs for ever green.
Two plenteous fountains the whole prospect crown,
This thro' the garden leads its streams around,
Visits each plant, and waters all the ground."
(Homer's Odyss. Book vii.)

GREEK SCENERY.

Greece is celebrated for its plains at Marathon; but the romantic, picturesque, and beautiful scenery of Greece is that of Arcadia, which is much higher than any other part, (except Parnassus, the Mount of the Poets, in which rises the Castilian spring) and was early celebrated for its pastoral state. This country consists of an almost continued succession of mountains, precipices, and promontories, and excepting along the banks of the river, admitted of no kind of cultivation; the other parts being adapted only for pasturage, most of the inhabitants were at one time necessarily employed in the tending of flocks. No situation could banish from an Arcadian the fondness for his country; many years after having left it he recalled with delight the picturesque and romantic scenes, which in his youth he had been accustomed to frequent, and often sang of the groves which covered the rugged steeps of Menælaus and Lycæus, or shaded the beautiful streams of Alpheus and Lodon.

* The garden of Alcinous, the Phæacian king, was situated in an island of that name, by some considered Corfu, in the Ionian sea. Gougel considers the Phæacians as a Greek colony in one of the islands of Asia.—(Origine de Loix, &c. tom. iii. 174.)

PLATES XXXIV.—XXXV.—XXXVI.

A VILLA IN THE ROMAN STYLE.—DIOCLETIAN'S PALACE.

"The palace of Diocletian covered an extent of ground consisting of between nine and ten English acres. The form was quadrangular, flanked with sixteen towers. Two of the sides were near six hundred, and the other two near seven hundred feet in length. The whole was constructed of a beautiful free-stone, extracted from the neighbouring quarry of Tragutium, and very little inferior to marble itself. Four streets, intersecting each other at right-angles, divided the several parts of this great edifice, and the approach to the principal apartment was from a very stately entrance, denominated the 'Golden Gate.' The approach was terminated by a peristylium of granite columns; on one side of which we discovered the square temple of Æsculapius, on the other the octagon temple of Jupiter. The latter of those deities Diocletian revered as the patron of his fortune, the former as the protector of his health. The range of principal apartments in the palace was protected towards the south-west by a portico five hundred and seventeen feet long, which must have formed a very noble and delightful walk; especially when the beauties of painting and sculpture within the piazza were added to those of the prospect without."—ADAM'S *Antiquities of Diocletian's Palace.*

THE villas, those abodes of splendour, are the links that unite the ancient Romans with the moderns. As to the present Roman mansions, they differ from those of antiquity; while ours of the present day are a close approximation to their antique architecture, and in their principal parts closely resemble them in their majestic disposition.* The national taste for the same magnificence is perpetuated, notwithstanding the contrast between the two states of society. These rural suburban villas are generally turned towards Rome, where a superb horizon is in harmony with the pomp of their architecture, and the marble statues, columns, vases, and fountains that embellish them. The villa gardens, planted with a noble regularity, far superior to the zig-zags of the English style, do not display the capricious pretensions to create sites which are found already made by nature; but they are destined for the promenade of powerful friends of the Art, who seek in their repose to contemplate its chefs-d'œuvre. Though too frequently deserted and suffered to decay, the Roman villas have not lost their original character, and their gloom even seems to increase their grandeur.

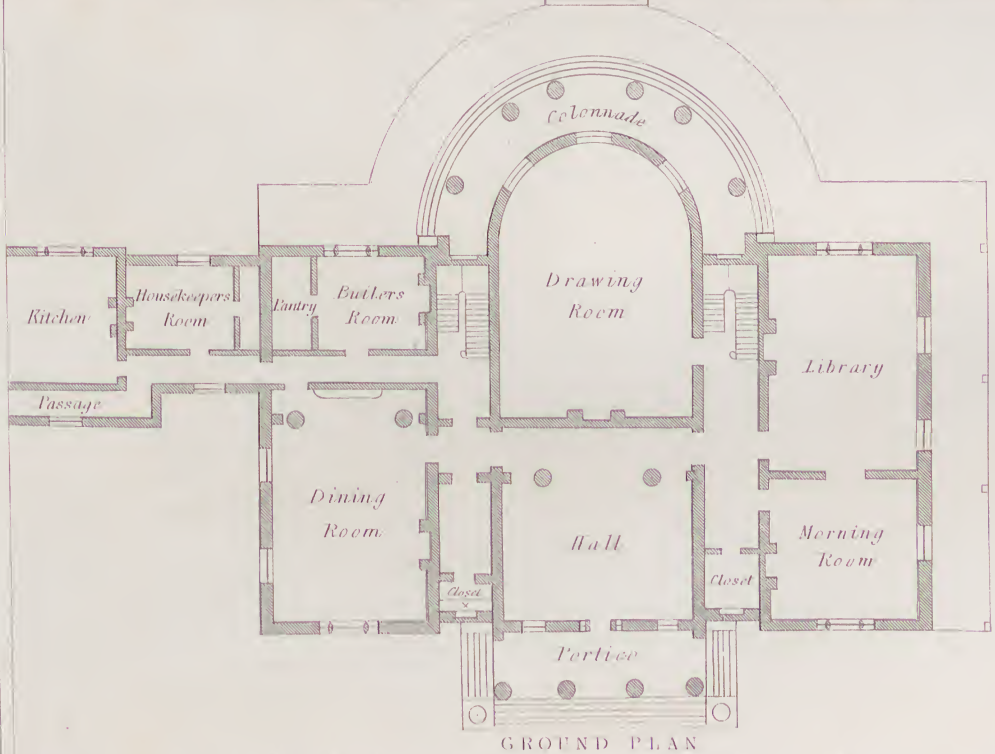
The Borghese villa in the neighbourhood of Rome, is one of the places dear to the Roman people, which attests the hereditary magnificence of that family. It was founded at the beginning of the seventeenth century by Cardinal Rupini, after the designs of Giovanni Vansanzio, called Il Fiammingo;† it is considered the most perfect and the most splendid existing, and is said to occupy a space four miles in circumference: its noble vistas, fountains, ornamented buildings, the superb palace itself, and almost innumerable antiquities, justly distinguish it as the first of the Roman seats, and worthy of being put in competition with the splendid retreats of Sallust and Lucullus. It stands upon a continuation of the Pincian Hill at a little distance from the walls of the city, about half a mile from the Porta Flaminia, or del Popolo. It covers the brow of the hill, and from the terrace has a noble view of the city. Those gardens are laid out with some regard, both to the new and the old system, for though symmetry prevails in general, and long alleys appear intersecting each other, lined with statues, and refreshed with cascades, yet here and there a winding path allures you into a wilderness, formed of plants abandoned to their native luxuriancy, and watered by streamlets murmuring through their own artless channels. The architectural buildings are, as usually happens to such edifices, deficient in correctness and purity of architecture. The temple of Diana is encumbered with too many ornaments. The Ionic temple in the little façade, is, indeed,

* In the ancient villas the buildings were low, lax, diffused over the park and detached. In the modern they are more compact, more commodious, and rise into several stories.—(F.)

† This is a land of jealousy, and of nicnames usually bestowed on artists and architects.—(Author.)

A VILLA IN THE ROMAN STYLE.

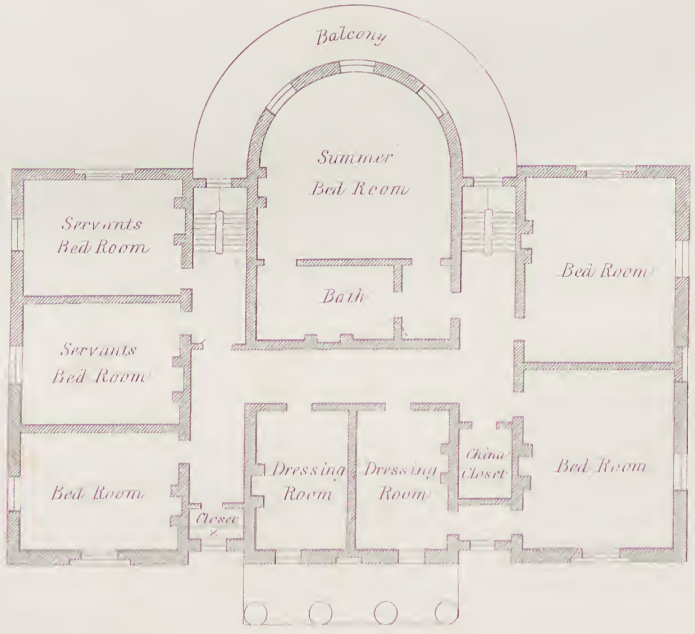
PERSPECTIVE VIEW OF GARDEN FRONT



GROUND PLAN

A VILLA IN THE ROMAN STYLE.

FRONT ELEVATION.



CHAMBER PLAN.

graceful, but rather too narrow for its elevation and effect, increased by the statues placed upon the pediment. One of the ornamented buildings contains a considerable collection of statues, found on the site of Galli, (for ruins there are none,) the territory of which now belongs to this family. The villa itself is of great extent, but though erected on the plans, and under the inspection of the principal architects of the age, and though built of the finest stone, yet it neither astonishes nor pleases. The reason of this failure of effect is evident, the ornaments are so numerous, and the parts so subdivided as to distract the eye, and to leave no room for any one predominant impression. The bass-reliefs and statues, scattered with rich prodigality over the exterior of this edifice are sufficient, if disposed with judgment and effect, to adorn the three largest palaces in Europe. The interior consists of several large saloons and apartments, and a gallery, all of which, particularly the latter, are lined and inlaid with the richest marbles, and supported by the noblest pillars, intermingled with bronze and gilding, and adorned with the last specimens of ancient art in sculpture and in painting. Such, indeed, is the value of the collection, and such the splendour of the apartments in which it is displayed, that no sovereign in Europe can boast of so rich a gallery or of a residence so truly imperial. Looking towards the west from this eminence at the close of a summer's evening we exclaim :—

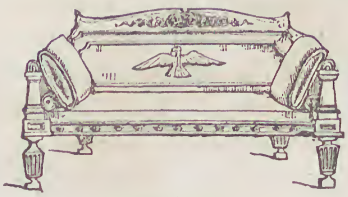
> "How pleasant as the sun declines, to view
> The spacious landscape change in form and hue,
> Here vanish as in mist, before a flood
> Of bright obscurity; with lawn and wood:
> There objects, by the searching beams betrayed
> Come forth, and here retire in purple shade."—WORDSWORTH.

The magnificence of this villa is probably equalled by that of the modern villa Estense at Tivoli, erected by a cardinal of that name in the sixteenth century. It is a lofty structure, surrounded with terraces, water-falls, groves of cedar, or cypresses and orange-trees, and adorned with statues, vases, and marbles. The gardens are laid out in the old style, and not conformable to our ideas of rural beauty; but the whole is in a most lamentable state of decay. Very different was the condition when the ilex (or evergreen oak) and the poplar shaded the margin of its fountain, and when described by Strada, who lays the scene of two of his effusions in its gardens. There are in the town or immediate neighbourhood of Tivoli other villas, of great extent and some magnificence, enjoying a perspective, similar advantages of situation and prospect; and perhaps no spot in the universe affords more of either; but unfortunately the modern Romans, like the Italians and the continental nations in general, are not partial to country residences. They may enjoy the description or commend the representation of rural scenes, and occupations in books and pictures, but they feel not the beauties of nature, and cannot relish the calm, the solitary charms of a country life. Hence the delicious retreats of Tiber, and the rival beauties of the Alban Mount, scenes that delight the philosopher, and enchanted the poet in ancient days, are now beheld with indifference, and, perhaps, honoured once a year during the villeggiature with a short and partial visit.

ROMAN FURNITURE.

The Romans at first lived temperate, and in great simplicity, but afterwards had gorgeous furniture in their houses. The bedsteads were splendid and made of oak, box, ebony, and cedrat, (Citrus medica Lin,) enriched with inlaid work and figures in relief of ivory. Sometimes we find that the beds were so highly elevated, that they required steps to reach them. In Hadrian's villa are alcoves for receiving the bedstead. (Ovid.) The bedding consisted of palliasses or mattresses, stuffed with straw, or wool, flock, or, at a later period, dried vegetables and vine-leaves. Down beds, according to Livy, were imported from Egypt on account of the geese kept there. (Livy xxxix. 6.) He says, the lectarats (bronze bedsteads) and previous bedclothes were introduced through the Asiatic army. The Roman feather-beds were sometimes those of the peacock. (Mart. Apon. hor.) Bed-coverings consisted of skins of sheep and goats, with the wool and hair on. It is said of the Romans, when the English first slept upon straw, that their servants at the same period lay upon mats made of rush, broom, and the down of reeds. A statue of Fortune was placed in the bedroom of princes. A portrait sometimes hung over the bed, and there were other pictures. Claudan mentions rooms hung round with mirrors. And Horace, though the passage is disputed,

ROMAN CHAIRS.



ROMAN SOFA.

is saidto have had his bed chamber so finished (Sueton. Vit. Horat.) They had tables of cypress wood, spotted like a leopard, the legs of which were of silver and the feet of onyx, and chairs of the common and curule form, and sofas covered with lion and tiger skins. Theophrastus, (33 ed. Cæsub.) mentions clothes' chests. There were also wash-hand-basins on stands for cleansing the face on getting up in the morning, and ewers, vessels of glass, and earthenware boxes, made of alabaster, sandal, and chased cases, and various trinkets or articles of dress were in the women's apartments. Plutarch says, that Numa introduced the Etruscan vases into Rome, and Livy says, those people brought here the crural chair. The candelabras were very numerous in Rome, composed of the shaft of a column entwined with ivy-leaves, grapes, various fruits, and other appropriate ornaments. Some were of immense height, placed in the centre of the staircase-hall, and supported a superb and luminous lamp. Thus the ancient Romans at last became voluptuous in furniture and in dress; having conquered the provinces of the East, and obtained immense possessions, they gave themselves up to a degree of luxury to which the moderns have never arrived. The profusion of pearls worn by the women can hardly be expressed; after having covered the head, the locks of hair, the neck, ears, fingers, and arms, they attached a great number to their shoes, and the celebrated Lollia Paulina on every public occasion carried no less upon her than the value of four millions of French francs. The expense of the suppers of Lucullus, Apicius, and Vitellius, exceeds imagination. The fish, of which they were so greedy, were seen alive at the tables before cooking them, and for this purpose there were reservoirs beneath. The servants at the suppers were all nearly of the same age, of the same quality, and colour of hair.—(Pigrotti.)

ROMAN GARDENS.

A vineyard and a garden (according to Varro) were usual accompaniments to a villa. Pliny describes his garden as set with mulberry and fig-trees, and a vine in the middle, a walk encompassing it, bordered with box, or where the box ended with rosemary. The box-trees were clipped as now, and the topiary art was in general use so whimsically, that servants inscribed the names of their masters in box or scented herbs, (Alberti, lex. 11.)* The cypress, bay, and ilex (evergreen oak) were great favourites in their gardens. An inclining situation, with a flowing stream, was preferred for gardens by the Romans. Indeed, the occurrence of springs breaking over in unexpected places was deemed a great addition. An old painting exhibits them so disposed as to bubble and form pretty cascades, or rushing from piles of rock, probably artificial, and made of the "vivus pumex" of Ovid, the ancients being accustomed to make grottoes of this kind. (Montfaucon.) A portico and withdrawing-room looked out upon the garden. The Nasconi sepulchres show upon them walks formed of lath-work, interlaced with vines. Terraces, approached by steps, on each side of which were dwarf pedestals, containing sometimes a statue of Priapus and other sylvan figures; heathen deities, busts of renowned men, vases, and similar ornaments were usual. The gardens were all adorned with the same evergreens, and represented, upon a greater or less scale, the same scenery. The Romans were fond of terraces in their gardens, which were approached by dwarf steps, on each side of which vases abounded. (Classical Tour.)

ROMAN SCENERY.

Nothing is more pleasing to an eye accustomed to contemplate prospects through the medium of a vaporous sky, than the extreme purity of the atmosphere, the consequent brightness of light, and the distant appearance of remote objects. A serene sky takes off much of the horrors of a desert, and communicates a smile to barren sands and shapeless rocks; what then must be the effect upon the face of a region in which nature seems to have collected all her means of ornament, all her arts of pleasing; plains, fertile and extensive, varied with gentle swells and bold elevations. Mountains of every shape, outline, and degree, sometimes advancing, sometimes retiring, but always in view; presenting here and there shaggy declivities clothed with woods, and there a long line of brown rugged precipices, now lifting to the skies a head of snow, and now a purple summit unfolding as you advance, and discovering their windings, rich vallies, populous villages, lakes and rivers, convents and cities. These are the materials of picturesque beauty, and the constant and almost unvariable features of Roman and Italian scenery. Hence this celebrated country has not only been the favourite resort, or rather theme of poets, but the school of painters, whether natives or foreigners, who have found in its varied prospects the richest source of every species of beauty. There, amid the Sabine hills, that spread so many soft charms around Tivoli, Poussin formed his taste and collected the originals of the rural scenery displayed in his most famous landscapes. Claude Lorraine made Tiber, the Alban Mount, and all the successive range of Apennines that sweeps along the Roman and Neapolitan coast, his favourite haunt, and there he saw and copied the glowing shades that embrown the woods, the rich tints that gleam along the distant promontories and brighten the surface of the ocean. Salvator Rosa indulged his bolder genius in contemplating the mountains and the forests of Calabria, where he found that mixture of strength and softness, of grace and mildness, and that striking combination of deep and airy tinges, that characterize his daring pencil.

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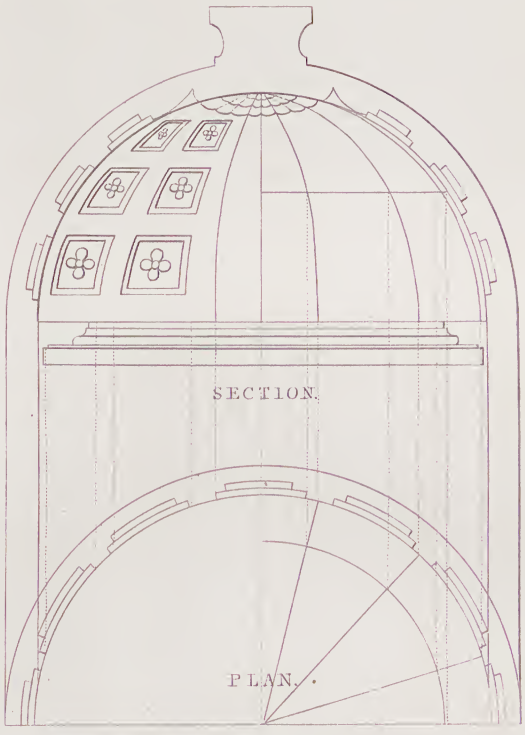
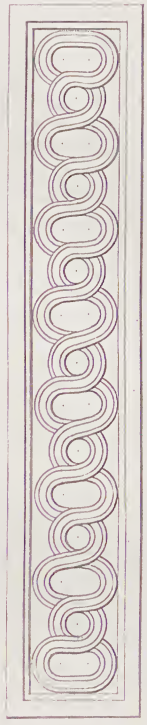
* Both the ancient and modern gardens betray the same taste for the unnatural; the same symmetry of plan, architectural groves, devices cut in box, and tricks performed by the hydraulic organa. Could the ancient Topiarii transform wood or water into more fantastic shapes than we find in the Villa Panfili? walls of laurel, porticos of ilex, green escutcheons, and clipt coronets vegetating over half an acre, theatres of jets d'eau, geometrical terraces, built rocks, and measured cascades? —(Forsyth.)

ROMAN COLUMNS, AND LACUNARIA DOME CEILING.

GUILOCHE.



LACUNARIA CEILING.



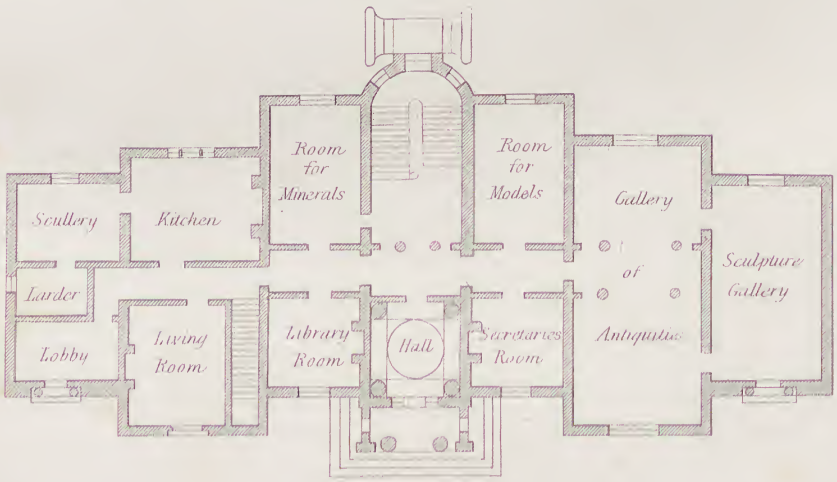
GUILOCHE.

TUSCAN DORIC IONIC CORINTHIAN COMPOSIT.

THE FIVE ROMAN ORDERS.

ANGLO GRECIAN MUSEUM.

SCENOGRAPHIC ELEVATION



GROUND PLAN

R. Brown delt.

Engraved by H. Adlard

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PLATES XXXVII.—XXXVIII.

ANGLO-GRECIAN MUSEUM.

"Gratitude is due to him who strikes out a new path and aspires to perfection, though he may not be able to reach her temple."—Sir Joshua Reynolds.

About the beginning of this century, a new style of architecture appeared in England from the designs of Sir John Soane, composed from the classic, Grecian, and those styles at Etruria and Tivoli in Italy.* This compounded style may be studied as containing much that is extremely beautiful, and as evincing a more playful fancy, if not a more refined genius, than had been exhibited in England for centuries. Sir John's reputation as a practitioner in Greco-Roman architecture (for it was never pure Greek) is supported by his magnificent designs for royal palaces, senate-houses, courts of Justice, and municipal edifices. There is enough in his peculiar style (exemplified in the Bank of England) to warrant our encomiums and high admiration of his taste and talent. "Never was professor less beholden to the many while he lived than Sir John Soane, yet he was continually subject to the censure of the poet and the press, and occasionally attacked with much more cruelty than criticism," and in none more so than the sarcasm entitled, The Modern Goth, supposed to have been written by Dr. Wolcot, the well-known Peter Pindar. But a high compliment has since been paid to Sir John Soane, though at the expense of Mr. Nash, a cotemporary architect, in ridicule of his Buckingham Palace, and some buildings in Regent Street:—

"Mr. Nash, Mr. Nash, you merit the lash,
For depraving the taste of our heir to the throne,†
Oh! don't cross the seas to rob the Chinese,‡
But learn to grow wise from Vitruvius and Soane."

It seems, say some, to have been Sir John Soane's aim to unite the classic delicacies of the Greek and Roman designs with the playfulness of the Gothic, not by the use of the pointed arch, but by adopting the principle of continuous lines, ramifying (without horizontal impediment) from the vertical into the circular. To illustrate his style more fully, I have composed the subjoined scenographic elevation for a museum, to be built in a provincial city; as town-houses harmonize better with this elegant style of architecture than that of sylvan scenery. This will give a notion of his peculiar feeling for linear rather than that of foliated decoration. It will also be observed, that there is an absence of the pediment so peculiar in most designs of the present day.§

* Perhaps it might be designated Romo-Grecian.—(Author.)

† The Prince of Wales, afterwards George the Fourth.

‡ This is not very apt; Mr. Nash was never a favourer of Chinese architecture.—(Author.)

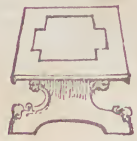
§ Sir John Soane considered that a pediment should never be introduced into a building, but only where it was to span the whole edifice, like those of the classic temples of the Greeks and Romans. His surfaces are frequently simple, their characters consist of sunk fretting and groove work, at other times curved zig-zag grooves and guilloches. The Italians departed from the Grecian principle, and adopted the square plan in their public edifices instead of the parallelogram; there was, therefore, no opportunity either in their Christian churches, or their palaces, or theatres, of reproducing the Pagan temple with its peristyle portico, so they took the portico from the temple and attached it against the front of their building, whatever that building might be, and whether it was required or not. If a projecting portico proved inadmissible, another departure; was adopted then they applied a pseudo-prostyle, i. e. they took the nondescript design, the superficial face of a portico or architectural mask, and absolutely stuck it against the wall, leaving it to justify; no other eulogy than may be awarded to an antique alto-relief attached to a modern museum.—(B.)

Plate XXXVIII. shows a section of the museum and the vestibule, as well as a development of the details of this Soanean class of architecture. In the vestibule is shown his peculiar feeling for linear decoration, which we have alluded to above, while it likewise illustrates the architect's partiality for continuing the vertical mouldings of the architraves uninterruptedly along the curve of the arch above it. In the vestibule, the manner in which the quadrangular ground-plan

Of Sir John Soane's orders in front of the Treasury, in London, he has selected those of the beautiful Corinthian columns from the Campano at Rome; and for the circular columnar front on the north-west corner of the Bank of England, he has chosen the very singular Corinthian order from the Temple of Vesta, at Tivoli. This has a dental cornice and a frieze, embellished with buffaloes' heads, from the horns of which are suspended festoons of flowers and fruits of the most beautiful and graceful forms.* Whatever might be the faults and frivolities of the architecture of the late eccentric professor, they are not more objectionable than the mere plagiarisms which form the gusto of certain other less abused architects, who have neither the imagination to invent nor the skill to combine, refer on every occasion to "booked theorie," wherein an articled student can propose as masterly as themselves.† Hence, it is distressing to see how many of the more imposing structures erected in the leading cities of Europe during the last half-century exhibit little more than a servile adherence to the antiquities of Athens. But it is at the same time encouraging to look upon certain edifices recently erected in London, and others now in progress, and to observe the positive signs of an awakened feeling for the very spirit of classical composition in our domestic architecture.

ANGLO-GRECIAN FURNITURE.

SOFA-TABLE.



DWARF BOOKCASE.

The furniture appropriate to the above style of architecture should be ornamented with terminal honeysuckles, Grecian fretts, and guilloches. Book-cases, finished with small low scroll pediments, and angle fan ornaments. The late Mr. Bullock, of Tenterden Street, Oxford Street, London, formed his designs for furniture upon this model, which have always been valued and admired for their unique elegance and good taste. The articles were made of the richest and most beautiful rose and other woods, and it is worthy of being recorded, that Mr. Bullock was the first manufacturer who introduced the mona or pollard oak into furniture.

The first mahogany article of household furniture manufactured in England, was in the year 1724, in the reign of George I. A physician at that time, of the name of Gibbons, who was residing in King Street, Covent Garden, London, received some planks of mahogany from his brother, a West India captain. He employed a person of the name of Wollaston, to make him a mahogany bureau of it; the man complained that the wood was too hard for his saw or planes to make any impression on; however, he persevered, and when the bureau was finished all the people of fashion came to see it. The cabinet-maker procured more planks, and soon made a fortune by the numerous and admiring customers he obtained. From that time the use of mahogany furniture went forward amongst the luxurious, and the drawers and bureaus of walnut-tree and cherry-tree were gradually superseded in the houses of the rich. The most valuable mahogany is that of the Spanish; the Honduras is of less value. In Honduras this tree, during a growth of two centuries, expands to an amazing gigantic trunk, and throws out such massive limbs covered with shining green leaves, and over such a vast surface, that even the proudest oaks of our forests appear insignificant in comparison.

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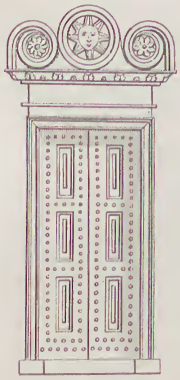
resolves itself into the circular flat-domed ceiling, and the mode of decorating that ceiling are also leading characteristics of Soanean design. The internal door in Plate XXXVIII. which has three scrolls above the cornice, and in the centre a head of Apollo, is taken from the door leading to the scala-regia of the present house of peers. The shell and scroll terminals with the chimney-shafts and fret cornice, are all taken from the Bank of England. The perforated balcony is from the late Sir John Soane's house in Lincoln's-inn-fields.—(A.)

* The temple of Vesta at Tivoli, a beautiful monopodian or circular edifice, is so well known, that it is almost superfluous to tell the reader that it was built by a colony of Greeks, who settled here in the reign of Augustus, and that it is admired not for its size, for it is small, but its singularities, beauties, and fair proportions, and by the traveller for its peculiar situation, being placed on the verge of a rocky cragg, suspended over the Præceps Anio, and above the echoing Naiads. It has beheld Augustus and Mecænas, Virgil and Horace, repose under its columns, has survived the empire, and even the language of its founder; and after 1800 years of storms, tempests, revolutions, and barbarism, it still exhibits its fair-proportioned forms to the eye of the traveller, and claims at once his applause and his veneration. To this temple Sir John Soane informed me, he had resorted for six successive weeks, measuring and drawing its details.—(Author.)

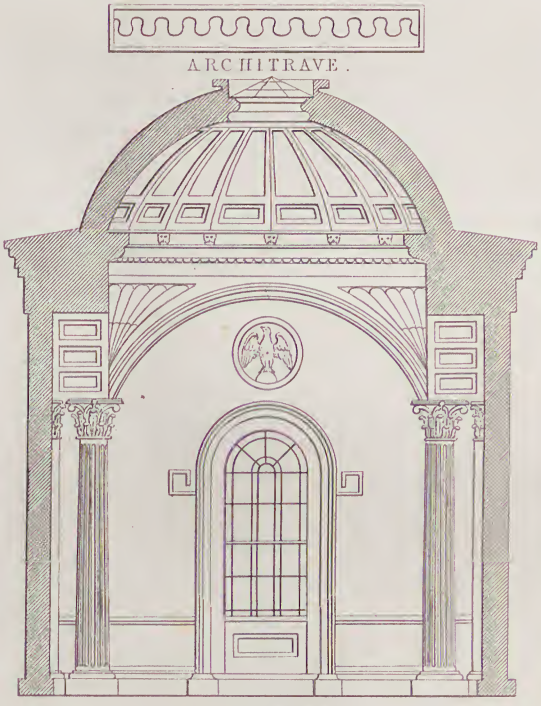
† The front of the West of England Fire Office in High Street, Exeter, though inappropriate in its style of architecture, is an exceeding good copy from Sir John Soane, particularly the rotund hall within the building. It was composed by the late Mr. Paty, a native architect of great taste, but he being a copyist cannot rank high, "as he who follows another," says the great English Lexicographer, Johnson, "will always be behind."—(Author.)

SHELL TERMINAL.

SCROLL TERMINAL.

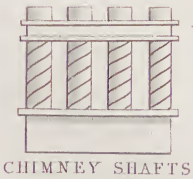


INTERNAL DOOR.



ARCHITRAVE.

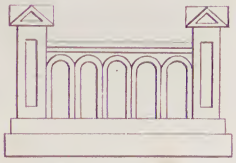
A VESTIBULE.



CHIMNEY SHAFTS.

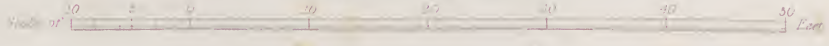
FRETT CORNICE.

BRICK CORNICE.



BALCONY.

SECTION OF MUSEUM

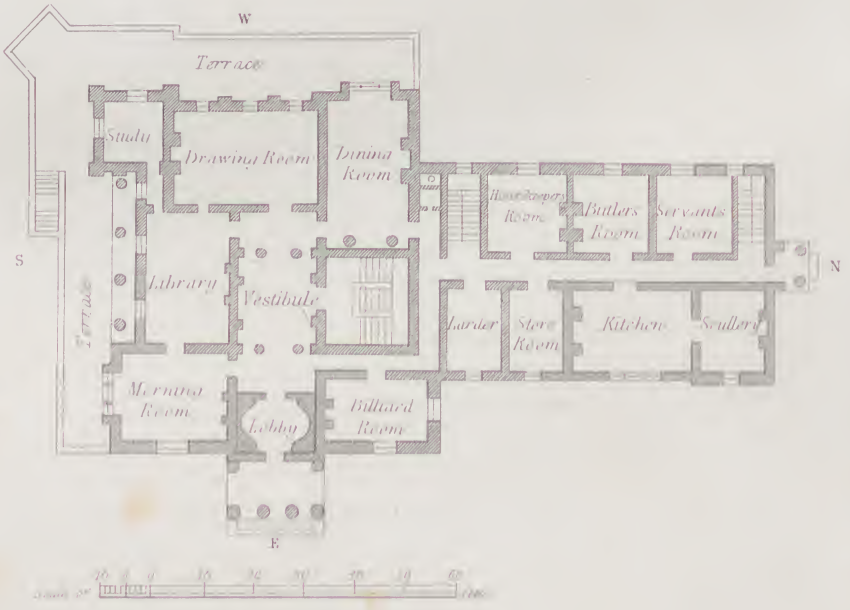


LONDON, PUBLISHED BY GEO. VIRTUE, 26, IVY LANE.

ANGLO ITALIAN VILLA.

PLATE XXXIX.

PERSPECTIVE REPRESENTATION.



GROUND PLAN.

PLATE XXXIX.

ANGLO-ITALIAN VILLA.

"Villas on the cliffs arise,
Proudly towering in the skies;
Below, the rivers how they run
Through woods, and meads, in shade and sun!
See on the mountain's southern side,
Where the prospect opens wide,
How close and small the hedges lie,
What streaks of meadows cross the eye,
Ever charming, ever new,
When will the landscape tire the view?"—DYER's *Gronger Hill.*

In Italy many villas occupy promontories,* while others are seated on the very brow of craggy cliffs, with still higher grounds rising towards the north, and receding to the east, commanding pleasing prospects to the south and west, and a complete panoramic view of the adjacent grounds. The campanile towers, seen at the south-west angle of the villa in the annexed plate, were at one time very generally adopted as a mark of nobility; the belvidere on the top was not only a place of prospect, but frequently employed as a watch-tower. The old English mansions had at one time a similar appendage. To describe the character which distinguishes an Anglo-Italian villa,† we shall first refer to the balustrade terrace, which is of Italian origin, a pleasing esplanade. The roof of the villa is Tuscan, which projects considerably beyond the face of the walls, and protects them from the heavy rains; the roof is likewise here kept low, being subject to violent winds, which might strip it of its covering.‡ The bedchamber windows are here preserved from the rain by the overhanging roof, which in consequence require no caps to the architraves; the lower windows are not so shielded, they have therefore consale caps or cornices, those within the portico of the entrance on the east, and the colonnade at the south are protected. The portico has a flat roof and a balustrade; the first serving as a shelter at the entrance-door while persons are stepping into the carriage, the other as a balcony above, connected with "my lady's chamber."§

As to this architectural structure being designated Anglo-Italian, we shall first remark, that it cannot be otherwise. Now it is not Roman, because all the details are Greek; neither is it Athenian, for some of the windows have arched heads; and, further, the villa is covered with a Tuscan roof. What is this edifice then, if neither of the above characters, but an Italian composition, formed and adapted to the locality, to the climate, and customs of England, receiving all the internal arrangements from its proprietor, the leading external masses from modern Italy, and its component parts from ancient Greece?

* The villa Strandata in Italy is situated in the midst of a wood of large trees upon the rocky promontory which separates the two branches of the lake, and which has the form of a X reversed. These trees skirt a precipice five hundred feet deep, rising abruptly from the water.—(Count Stendal's Sketches.)

† The Italian is to the Roman what the Tudor is to the Gothic.—(Author.)

‡ The roof of Covent-garden Market, from a design by Inigo Jones, of London, is of Tuscan origin.—(Author.)

§ The balustrade-terrace naturally originated in the peculiar form of the surrounding site of ground; the required shape and arrangement of the rooms prevented uniformity in the south and west fronts respectively, but in an angular view which embraces these fronts, is seen an uniform composition of which the prospect-tower forms the centre. The entrance front (with the exception of the servants' offices, which recede, and are to be hid by evergreen shrubs) will be perceived, though picturesque in one point of view, to be perfectly regular in design in another. Thus, variety of effects successively present themselves at every point of view in an Anglo-Italian villa. Italian architecture is sometimes characterized by irregularity and strange contrasts, and by other painter-like effects. No architect therefore ought to attempt the Italian style who has not studied the composition of landscape scenery generally.—(W. L.)

PLATES XL—XLI.—XLII.

A PERSIAN PAVILION.—PALACE OF AHASUERUS.

In the third year of the reign of Ahasuerus in his palace at Shushan, (supposed to have resembled that at Persepolis,) the king assembled all the princes of Persia and Media, his servants and the nobles of his power, over which he reigned from India unto Ethiopia, which were an hundred and seven and twenty provinces. The princes and nobles being assembled, the king showed them all the riches of his glorious kingdom, and the honour of his excellent majesty, many days, even an hundred and four-score. "And when these days were expired, the king made a feast unto all the people that were present in Shushan the palace, both unto great and small, seven days, in the court of the garden of the king's palace; where were white, green, and blue hangings, fastened with cords of fine linen and purple to silver rings and pillars of marble: the beds were of gold and silver, upon a pavement of red, and blue, and white, and black marble."—Book of Esther, Chap. i.

It is the custom in Persia for the reigning sovereign not to inhabit any palace of his ancestors, so that sumptuous edifices are neglected or otherwise destroyed to erect a different design in its place.* The domestic architecture of the present Persians resembles that of the Arabian and Turkish Mahomedans. The pavilions of the princes in the various provinces are splendid, but the finest palace in Persia is that of Isphan, called Chehel Sitoon or Forty Pillars. As this is to our purpose, we shall detail it. The palace was built by Shah Abbas the Great. It stands in the middle of an immense square, which is interspersed by various canals, and planted in different directions with the beautiful chenar (sycamore) tree, before it spreads a large sheet of water, from whose extremity the palace is beautiful, either beyond the power of language to describe or the correctness of the pencil to delineate. The edifice itself, though inferior to the gardens amid which it stands, is a monument of the luxury and splendour of the age in which it was erected. In front is an open portico containing small pillars; the four central ones, which are placed at the angles of a square fountain, have a device of four lions carved in a hard stone for the pedestals; those pillars are all lofty, about fifty feet, but disproportionately slender; the shafts are of solid sycamore wood, shaped octagonally, and lessening from the base upwards. The capital itself rises in a square, increasing in dimension from below like an inverted pyramid; it is fluted on every side by concave niches so peculiar to the Saracenic architecture. The shafts and capitals of these pillars are entirely covered with silvered glass as mirrors, sometimes wound round in spiral flutings, and others laid in perpendicular plates, and in others again ornamented by flowers and other devices, after the manner of embossed work or polished steel. The ceiling of the roof of the portico is divided into equal compartments, moulded and richly carved, and with azure blue, and gold in admirable devices. The back part of this portico is one entire sheet of gold and mirrors, splendid as a whole, and containing many beauties in its minute details. Every possible variety of form is given to the devices in which the plates and smaller pieces of glass are disposed, and their partitions and frames of gold. Paintings of beautiful females, some sculptured works, or marble inscriptions of highly-finished writing of gold or blue enamel, with a hundred other details impossible to be remembered amid the overwhelming magnificence of so much labour and wealth, distracts the attention of the observer.†

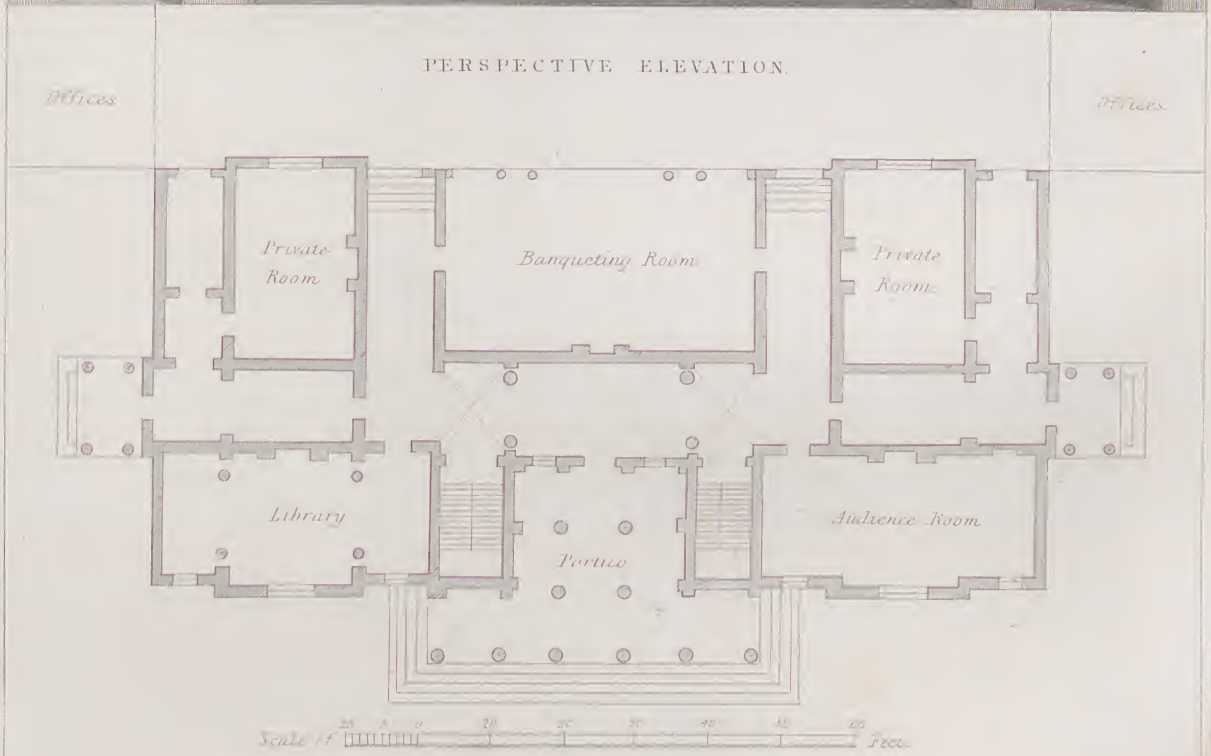
* Sir Robert Ker Porter's Travels in Persia.

† The hall into which this vestibule leads, and for which the noble portico is an admirable preparation, is, if possible, still more magnificent, though its decorations are of a different character. The vast size of the room itself is alone sufficient to give it a princely air, and the domed roof is indescribably beautiful. In this banqueting-hall (for that such it was is indicated by the character of its decorations) all the caprices, and labours and costs of fashion and Eastern magnificence have been lavished to an incredible prodigality. Its walls are embellished with six large paintings, which, though performed without the smallest knowledge of the laws of perspective, and in many respects ridiculous, are nevertheless invaluable here as registrations of the manners of the age in which they were executed, as also the general countenances of the persons they are designed to commemorate, and of the costumes of the several nations assembled at the feast, or engaged in the battles which they represent.—(Chardin's Travels.)

A PERSIAN PAVILION.

PLATE XI.

PERSPECTIVE ELEVATION.



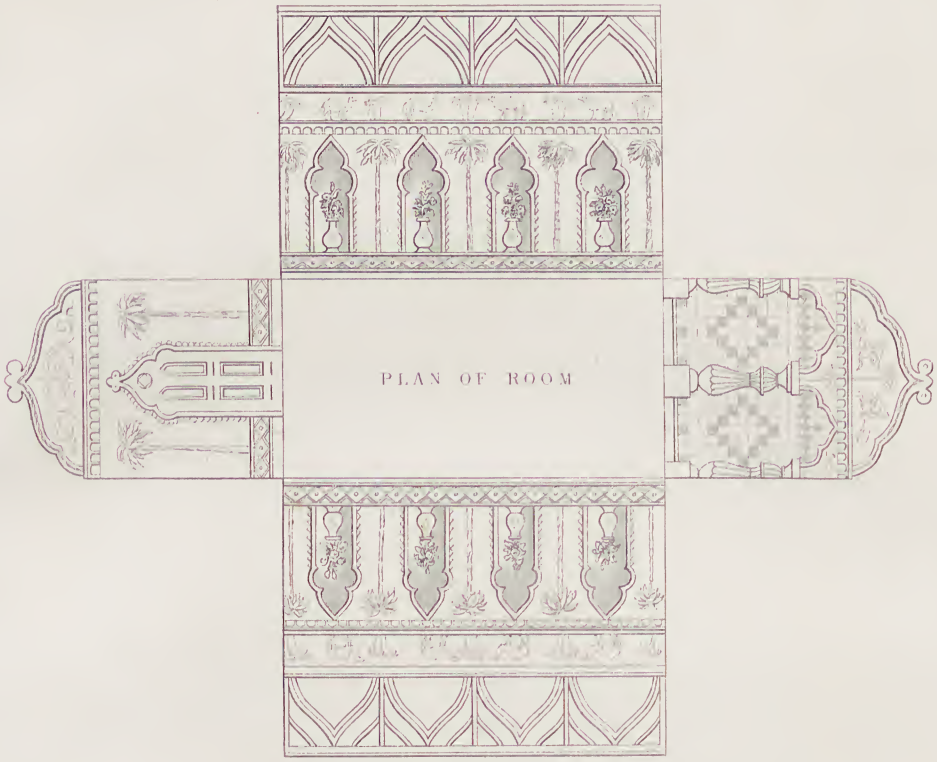
GROUND PLAN.

J. Dean, Arch.t

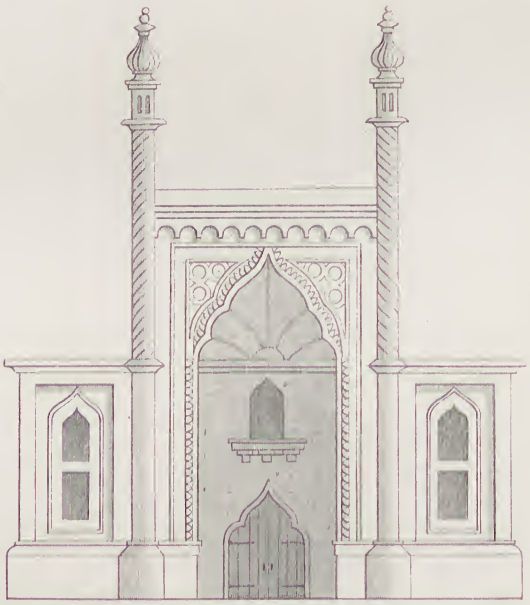
Engraved by H. Adams

LONDON PUBLISHED BY THE MISSION PRINT LANE

PERSIAN BANQUETING ROOM AND OUTER GATE.



A BANQUETING ROOM DEVELOPED.



ELEVATION OF AN OUTER GATE

R. Brown Arch.t

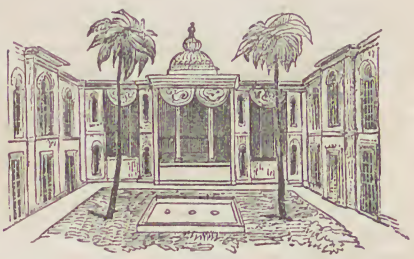
LONDON PUBLISHED BY ORO-VIRGUE 10 TEY LANE

The palace of Shah Abbas the Great, in Persia, called Talar Taweelah, now in ruins, was once a superb residence. It had a hall of audience of noble dimensions and splendid decoration; the walls from the floor to the roof were of raised gold work on a blue ground, and the lower recesses executed in general with devices of trees, birds, and flowers; and belonging to this palace were also extensive stabling for one thousand horses.* The doors belonging to the rooms of this palace were made of sycamore wood and panelled, with carved and gold mouldings. The windows over the door leading to the garden, were among the most beautiful of any that I had seen in Ispahan.† Some of the arches were of the laurel, others of the fig-leaf form. As the doors below were double, so were the windows; the hollow between the inner and outer ones occupying all the thickness of the wall, from three to four feet Behind the suit of apartments connected with the great hall, beside the fore-court, were other courts and gardens, having canals and fountains, and surrounded by buildings, fit in every sense to form the abodes of luxurious and powerful sovereigns. This palace, says Sir Thomas Herbert, who visited it in 1627, rises two stories high, gilded and wrought in antique work, and posies to the outward view; within, the rooms are covered with carpets, the roof embossed and wrought with gold and blue: above is a terrace.

PERSIAN FURNITURE.

The furniture in Persia (says Mr. Buckingham in his Travels) of all the rooms I had seen, consisted simply in carpets. These were, indeed, of the finest and softest kind, as well as exceedingly beautiful, but there were neither sofas nor cushions of any kind as used in Turkey and Arabia. The Persians sit on the floor as tailors do on the shopboard, and when taking refreshment, they sit on their heels forming in the room generally three sides of a square. The refreshments are brought in large oblong trays, and placed before the company close to the wall of the room; the trays, when placed end to end, form one continued table before the guests, which are conveniently accessible by every one. Water is generally served to the guests for washing, both before and after meals, as they take up their meat (rice) with their fingers. Vessels for wine, flaggons, &c. they have in abundance. The houses of the nobles are enclosed by courts and surrounded with a wall: the roofs of these houses being flat, the Persians sleep on them in the summer season, exposed to the sky at night, but have parapet walls. In the morning those people roll up their sleeping-mat and take them to the rooms below.† In the king's palaces are divans and ottomans on which they sleep, and in the ancient palace at Shushan, in the reign of Ahasuerus, we find there were bedsteads of gold and silver (see motto). There were also chairs (according to the Scriptures) at Persepolis.

COUCH.



GARDEN FRONT OF A PERSIAN RESIDENCE.

PERSIAN GARDENS.

One of the most noble ornaments of Ispahan is allowed to be that of the Chehar Bagh, or "Four Gardens," a superb avenue, three hundred paces in length and seventy in breadth; it extends here on either side of the river Zeinderhood, and approaches with a gentle declivity to both ends of the principal bridge across that river. It is planted with double rows of chenar, a species of sycamore, with a verdure like that of the red rose, of which the Persians are extremely fond, and which grows here in great perfection. On the borders are built a number of private pavilions, the style of their architecture is light and pleasing, and their situation gives them a grotesque effect. The gardens, which are situated on either side of the avenue, are very beautiful, and are called by the Persians Hashet Behest or eight Paradises. They are laid out in regular walks, by rows of tall umbrageous chenars, interspersed with a variety of fruit-trees, and every kind of flowering shrub. Canals flow down the avenues in the same undeviating lines, and generally terminate in some large marble basin ornamented with sparkling fountains. The effect is described as grand, and it is much increased by the occasional glimpses which various opening points of the glittering pavilions present, which ornament this charming spot; groves, fruit-trees, and flowers are the usual accompaniments. Among these, rose-trees are found to grow full fourteen feet high, laden with thousands of flowers, in every degree of expansion of bloom and delicacy of scent, so as to imbue the whole atmosphere with the most exquisite perfume. Indeed, I believe, says Sir Robert Kerr Porter, that in no country of the world does the rose grow in such perfection as in Persia.

* Malcolm's History of Persia, vol. i. p. 119.

† From Ostade Mohamet Ali's account, a native of Shirah, and late pupil of the author's.

PERSIAN BATHS.

The baths at Damascus, and the manner of bathing being the same as in Persia, we shall give an interesting description of one of those places in that ancient city, with the process of purification, from a traveller (Addison). "Here the delicious custom, so often mentioned in the Arabian Nights, universally prevails, of going to the bath after a long journey through this parched country before he puts on clean linen, having previously laid down at every place of rest in his travelling habiliments. Having packed up our clean linen and sent them by slaves, we proceeded to the principal bath of the city of Damascus, called the Bath of Musk, which we approached through a court in which was an ornamented fountain, that threw up a stream of water seventy feet into the air, and again returning, produced a refreshing and pleasant coolness. Our entrance into the bath was by a small door, which opened into a vast circular saloon surmounted by a large dome, and paved with marble. In the centre of which a large fountain was bubbling over, and rolling into a circular marble basin below. The scene, on entering, to a novice is very astonishing; around the large circular hall were raised platforms or divans, covered with carpets, and beds in alcoves inclosed by curtains. On the raised divans might be seen the most extraordinary grim figures imaginable; some, rolled up in towels and napkins, lie extended at full length, smoking; others sat up sipping coffee. Some were divesting themselves of their garments, assisted by a black slave, and others were in a complete state of nudity in the act of having a towel wound round their waists. We were allotted a raised recess, covered with carpets, in which little couches were quickly prepared with cushions and linen sheets. Our little bundles of clothes being deposited by the side, we commenced undressing. An attendant stood close at hand with towels, and as we were successively reduced to our last garment, he wound a towel round our waist. Being now completely stripped, a long towel was thrown over our shoulders, and another, wound in the shape of a turban, round our heads. As we successively descended the platform, a pair of pattens, called kabkabs, about a foot high, were placed for us to get into to protect our feet from the wet cold marble pavements. We accordingly with our serving-men entered the first room, which was vaulted and paved with marble, and moderately warm, and then passed through rooms enveloped in mist, each succeeding room becoming hotter and more dense with steam, in which might be seen strange unearthly objects; some lying extended on their backs upon the floor, while wild-looking men with bald heads were pounding and rolling them. Some stood up to their knees in large circular basins of hot water; others were seated on their haunches, covered from head to foot with soapsuds, which were lathered over them with an implement like a horse's tail; others were being almost scalded with hot water, which was poured over them from buckets, while others sat quietly smoking or sipping coffee on marble divans unmoved by the puffing, washing, and scrubbing around them; while men with grey beards, and young boys without any, were all quietly in a state of nudity rocking about, appearing and then vanishing again in the fog.

"We sat down on a marble bench in the last room of all, the atmosphere of which was very hot and oppressive at first; this, however, soon went off, when a profuse perspiration broke out and trickled down from every pore, coffee and pipes were brought in and handed round to us. It is usual to rest about half an hour or longer, according to fancy, to allow a thorough perspiration to break out. After taking and sipping our coffee for some time, the different attendants we had chosen came up, and made overtures to us to come and be scrubbed, which we successively yielded to as our pipes were finished and our coffee drank; and we were each one of us successively conducted to some quarter of this or the adjoining room under a cock of hot water, where takes place the following process. The attendant puts on a mohair glove and commences scrubbing every part of your limbs and body, which are moistened with perspiration until he brings off more dirt than you conceived ever to have defiled your person. This operation lasts about a quarter of an hour, the attendant constantly dipping the glove into hot water and almost brings away the skin by the hardness of the rubbing. When he can get no more dirt off your body he draws a long breath, muttering an ejaculation of 'aieeb, taieeb!' (good, good,) expressive of satisfaction, and then pushes you down on your back, extending you at full length on the marble floor. He now pinches and squeezes your shoulders, arms, and all your limbs, then pulling your fingers, he makes the joints crack with a startling loudness; he then applies himself to your arms and legs, moving the bone about in the socket in an alarming manner. Now rising your shoulders he pulls you up, and putting his knee into the small of your back, gives you a twist and a crack that makes you wince, and then clapping his hands shouts, 'Taieeb, taieeb, thateir!' meaning to say, that the whole thing has been completely done. An attendant now appears, and binds a dry towel round your waist and head, and another over your shoulders as at the commencement, and you are led out, scarcely able to stand through the heated rooms, into the cold external hall, where the transition is quite as great as that of a man going out of a warm room naked on a winter's night into the external air, when the thermometer is ten degrees below freezing point; the temperature of these baths being from one hundred to one hundred and five degrees, and the exterior hall at the time we visited at sixty-five to seventy degrees. The effect, however, is very different; cold is said never to be taken, and we never experienced aught but the most pleasant and agreeable feeling; tightness, pains in the joints, and fatigue vanish away, and you think of nothing but pleasure and happiness."

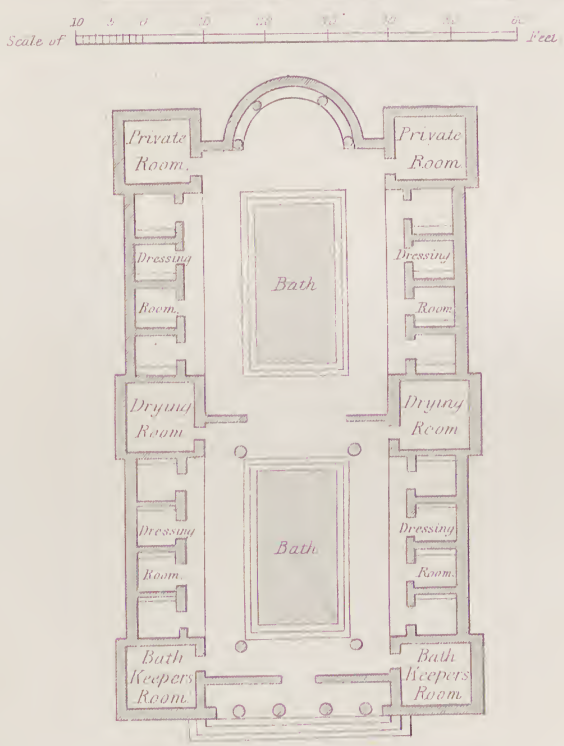
ANCIENT CITY OF DAMASCUS.

Damascus is one of the most venerable cities in the world for its antiquity. It is supposed to have been founded by Uz, the son of Shem, the first son of Noah, and is known to have existed in the time of Abraham. For three centuries it was the abode of the Persian kings. Here the houses have externally a very mean appearance, presenting only a dead wall of unburnt bricks, towards the street, with one or two windows, possessing no glass, but filled with a thick lattice, formed of cross bars of wood. The cold air is excluded at night by a sliding shutter, fastened by a wooden bolt of curious construction; the inhabitants sleep on the tops of the houses in the summer season, with their clothes on, which they only take off when they go to the baths.—(Addison's Damascus, Vol. II.)

PERSIAN BATHS, PLAN, AND INTERIOR.

PLATE XLII.

INTERIOR OF BATHS QUADRUPLICATE.



PLAN OF BATHS.

R. Brown, Art.

Engraved by J. Adlard

LONDON: PUBLISHED BY GEO. WHITE, 86 FLEET LANE.

A CHINESE RESIDENCE.

ELEVATION WITH SCENERY

PRINCIPAL PLAN

H. Brown, Archt.

Engraved by H. Adlard

LONDON, PUBLISHED BY SEO VERCHE, 82 IVY LANE

PLATES XLIII.—XLIV.

A CHINESE CASINO.

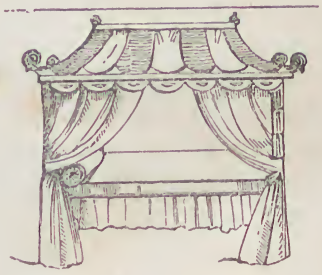
"The architecture of the Chinese is of a peculiar character, totally unlike any other, irreducible to our rules, but perfectly consistent with its own. It has certain principles from which it never deviates, and although when examined according to ours, it sins against the ideas we have imbibed of distribution, composition, and proportion; yet upon the whole it produces a most pleasing effect."—EARL MACARTNEY.

IN vain should we look in China for those massy and stupendous fabrics that appear in the pyramids and the pillars of the Egyptians; the beautiful and symmetrical works of art displayed in the temples of the Greeks, the grand and magnificent remains of Roman architecture, and that convenience and elegance of design which characterizes the modern buildings of Europe. Indeed, the government of China forbid magnificent houses to be erected, to show their submission to the emperor's palace. The houses of the mandarins in China, in their original form, have been compared to a Tartar tent; they are constructed with wood, and the projecting roof supported on bamboo pillars; they are inclosed within a low wall, which has one large middle and two side entrances. The house consists of detached dwellings, occupying a great extent of ground, in consequence of being but one story high. The more wealthy classes have brick houses generally built with hollow walls; there is little regard had to convenience, and they are generally not very large on the ground-plan, and seldom rise above two stories in height.* They have courts between each dwelling, and are so fond of privacy that they have no windows towards the road or street, neither will they suffer their neighbours to have any which can overlook them; and there is always a screen within the outer gateway to prevent strangers from looking in. Mr. Barrow informs us in his travels, that when at Pekin with the suite, they were lodged in a house of the above description, and that the ground-plan was four hundred feet by two hundred, and laid out in ten or twelve courts. Some, says he, have two, some three, and others four tent-houses, standing on stone terraces, raised about three feet above the court, which was paved with tiles. Galleries of communication forming colonnades of wooden pillars, painted red, were carried from each building, and from one court to another, so that every part of the house might be visited without exposure to the sun or the rain. The number of wooden pillars of which the colonnades were composed was about nine hundred, most of the rooms showed the rafters of the roof, but one had a slight ceiling of bamboo-laths covered with plaster, and the ladies' apartments consisted of two stories; the upper however had no light, and was not so good as our common garrets. The floors were laid with bricks, and some with clay. The windows had no glass; oiled-paper or vellum, gauze or pearl, shell or horn, were used as substitutes. In the corners of some of the rooms were holes in the ground, covered over with stones or wood, intended for fireplaces, from whence the heat is conveyed as in the houses of ancient Rome, through flues in the floor or in the wall, the latter of which are generally built hollow, and whitened on the face with lime made from shells, and imported from the sea-coast.†

* Gutzlaff.

† Those who would rely on the florid relations in which some have indulged in their description of the palace of Pekin, and those of Yuen-Min-Yuen, would experience on visiting them a woeful disappointment. Those buildings, like the common habitations of the country, are all modelled after the form of a Tartar tent. In fact, the tents stand confessed in all their dwellings, of which the curved roof and the wooden pillars, in imitation of the tent-poles, forming a colonnade round their ill-built brick walls, clearly denoting their origin; and from this original form they have never ventured to deviate. The apartments are as deficient in proportion, as their construction is void of every rule and principle which we are apt to consider as essential to our architecture. The principal hall of audience at Yuen-Min-Yuen, stands upon a

WASH-HAND-STAND.



CHINESE TENT-BED.

CHINESE FURNITURE.

The furniture of the Chinese pavilions and casinos, consists of yellow japanned bamboo tables, chairs, and commodes, and painted screens. Their bedsteads of bamboo are very elegant, and their curtains for the summer are of silk, and their counterpanes of the same. They have feather-beds, but most generally they sleep upon quilts or mattresses.* Of such antiquity appear the Chinese feather-beds, that at a time when the English barons were sleeping on the floor upon straw, the Chinese were reposing on feather-beds raised upon a frame as we now see our tent beds.† They have also handsome painted jars, China plates, tea-pots, &c. and lamps with grotesque heads, as well as pictures in their apartments; but these are all drawn geometrically, as the Chinese have no idea of perspective. Ghirrardine, an European, when in China, painted a large colonnade in parallel perspective, which struck the natives so forcibly that they concluded he must certainly have dealings with his satanic majesty, but on approaching the canvas, and feeling with their hands, in order to be fully convinced that all they saw was a flat surface, they persisted that nothing could be more unnatural than to represent distances where there actually was not nor could be any distance.—(Barrow's Journal.) The bamboo which is generally used for furniture is one of the most useful woods in China. In building, it forms almost entire houses, bridges, boats, masts, rigging, agricultural and other implements, and for machinery. It is said to be indestructible by fire, and of the most rapid growth; rising from fifty to eighty feet the first year, and the second perfecting its timber in hardness and elasticity.

CHINESE GARDENS

A Chinese gardener, says Lord Macartney, is the painter of nature, and though totally ignorant of perspective as a science, produces the happiest effects by the management or rather pencilling of distances, if I may use the expression, by relieving or keeping down the features of the scene, by contrasting trees of a bright with those of a dusky foliage, by bringing them forward or throwing them back, according to their bulk and their figures, and by introducing buildings of different dimensions, either heightened by strong colouring or softened by simplicity and omission of ornament. The Chinese are particularly fond of sheets of water in their gardens, that in the park of Gehal is well worthy of notice, I shall therefore give an account of it from Lord Macartney's own statement, who visited it by permission of the emperor. "As we moved onwards, an extensive lake opened before us, the extremities of which seemed lost in distance and obscurity; here was a large and magnificent yacht ready to receive us, and a number of smaller ones for the attendants elegantly fitted up, and adorned with numberless vanes, pendants, and streamers. The shores of the lake have all the varieties of shape which the fancy of a painter can delineate, and are so indented with bays or broken with projections, that almost every stroke of the oar brought a new and unexpected object to our view. Nor are islands wanting: but they are situated only where they should be, each in its proper place and having its proper character. One marked by a pagoda or other buildings are quite destitute of ornament; some smooth and level, some steep and uneven, and others frowning with wood or smiling with culture. Where anything particularly interesting was to be seen we disembarked from time to time to visit them, and, I dare say, that in the course of our voyage we stopped at forty or fifty different palaces or pavilions. These are all furnished in the richest manner with pictures of the emperor hunting, and with stupendous vases of jasper and agate, with the finest porcelain and jasper, and with every kind of European toys, with spheres, orreries, clocks, and musical automatons of exquisite workmanship, and in great profusion. It would be an endless task to attempt a detail of the varied lawn, grove, and mountain scenery, and all the wonders of the above-named place. There is no beauty of distribution nor feature of amœnity, no reach of fancy which embellish our pleasure-grounds in England, that is not to be found here."

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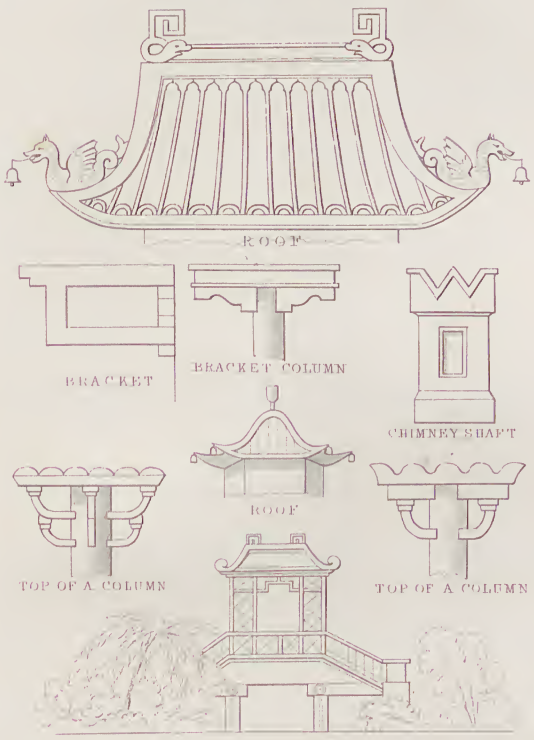
platform of granite, raised about four feet above the level of the court. A row of large wooden columns surrounding the building supports the projecting roof, and a second row within the first, corresponding with it. The interstices between the columns are filled up with brickwork to the height of about four feet, which serves for the walls of the room. The upper part of the walls have a kind of lattice-work, covered over with large sheets of oiled paper, and capable of being thrown entirely open on public occasions. The wooden columns have no capitals, and the only entablature is the horizontal beam that supports the rafters of the roof. Thus, is the upper member in direct contradiction to the established rule of European architecture which is composed of an architrave frieze and cornice. There was nothing but a broad screen of wood fastened between the upper part of the columns, painted with the most vivid colours of blue, red, and green, and interspersed with gilding. The length of this room within is one hundred and ten feet by forty-two, and the height twenty feet; the ceiling is painted with circles, squares, and polygons, whimsically disposed, and loaded with a great variety of colours. The floor is paved with grey marble, flag-stones laid chequer-wise. The throne placed in a recess, is supported by rows of pillars painted red like those without. It consists entirely of wood, the carving of which is exquisitely fine. In the different courts are several miserable attempts at sculpture and some bronze figures, but all the objects are fanciful, distorted, and entirely out of nature. (Barrow's Travels in China.) The emperor's country pavilions always front the south, and are usually situated on irregular ground near the bases of gentle hills, which, together with their adjoining valleys, are inclosed by high walls, and laid out in parks and pleasure-grounds, with every possible attention to picturesque beauty. Wherever water can be brought into the view, it is not neglected. The distant hills are planted, cultivated, or left naked, according to their accompaniments in the prospect. The boundary-wall is often concealed in a sunk fence, in order to give an idea of greater extent.—(Macartney's Embassy to China.)

* Gutzlaff's History of China. † Hallam's History.

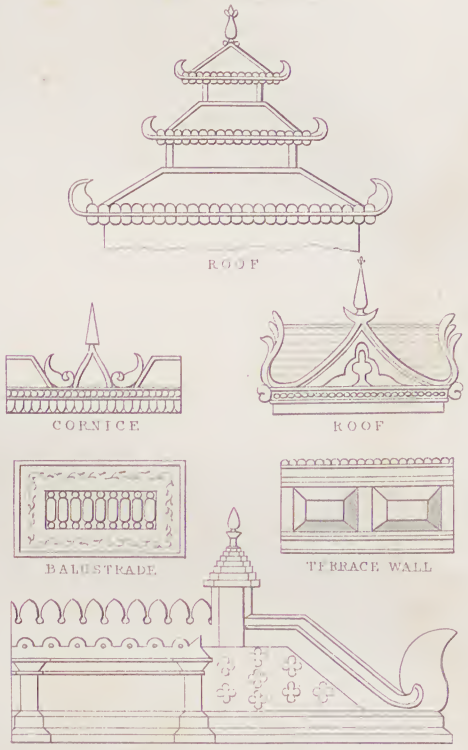
A CHINESE RESIDENCE, SECTION AND DETAILS.

CHINESE DETAILS



A BRIDGE

BURMESE DETAILS



SIDE OF A STAIRCASE

TRANSVERSE SECTION

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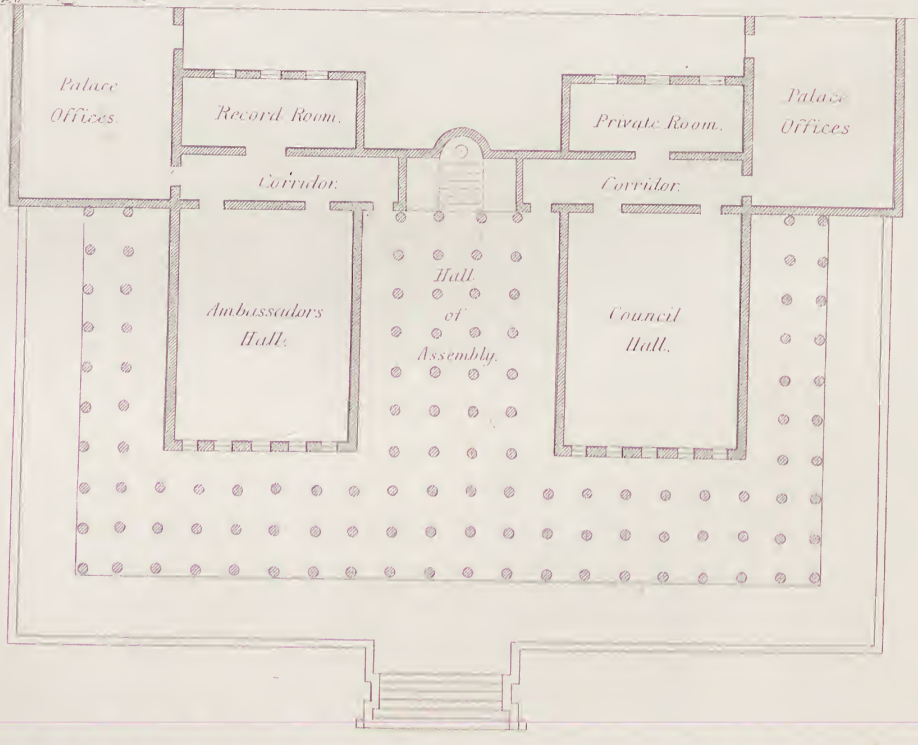
A BURMESE PALITAL HALL OF ASSEMBLY.

PLATE XLV.

SCENOGRAPHICAL ELEVATION.



GROUND PLAN.

R. Brown, Arch.t

Engraved by H. Adlard.

PLATE XLV.

A BURMESE PALATIAL HALL OF ASSEMBLY.

"The architecture of the Burmese is of a mixed character, which leaves us perplexed between feelings of admiration and ridicule. It is a modification of the Chinese, on the boundary of whose country the Burmese empire is situated, but is more graceful and beautiful than the Chinese architecture. Their roofs are formed in stages one above another, in five distinct stories: between which are the windows that give light to the interior, as well as those windows in their walls; each roof is surrounded by a cornice curiously carved and richly gilded, which produces a picturesque effect. It is however to be lamented, that their edifices are in general composed of such perishable material as wood, which, though of the most durable kind, (perhaps, in the world,) cannot last for many generations, or leave to posterity a monumental proof of the taste or magnificence of their national architecture."—Syme's *Embassy to the Kingdom of Ava*, p. 125.

While the Hindoos appear to have built for eternity, the Burmins seem to have constructed for time: one is calculated to battle with the elements, the other serves only as a protection from rain and the fervour of the sun; of this we have an example in the palatial edifice before us, which we shall proceed to describe. The area of the court, in which is situated the grand hall of consultation and of audience, says Colonel Symes, (who visited it on a mission) where the Woongees (or first councillors of state, and Attawoons or privy councillors) meet, and where affairs are discussed and determined, is spacious. Within this inclosure there is an inner court, separated by a brick wall, which comprehends the palace and all the buildings annexed to the royal residence. The edifice shown in our subjoined plate, containing a four-storied roof, crowned with a piasath or royal spire, is situated in the front court of the palace, and has a flight of steps leading to a terrace, where you enter a noble saloon, called the Latoo. Here the court on particular occasions assemble in all the pomp and grandeur of Burman display. On entering this open hall, a stranger cannot fail to be surprised at the magnificence of its appearance; it is supported by seventy-seven pillars disposed in eleven rows, each consisting of seven. The space between the pillars is twelve feet, except between the central row, which is three feet wider. The roof of the building is composed of distinct stages, the highest being in the centre. The row of pillars that support the middle of a most lofty roof are forty feet in height; the others gradually diminish as they approach the extremities of the building, and those which sustain the balcony are fifteen feet. At the further part of the hall there is a highly-gilded lattice, extending quite across the building, and in the centre of the lattice is a golden door, which when opened displays the throne; this door is elevated five or six feet from the floor, so that the throne must be ascended by means of steps at the back, which are not visible; nor is the seat of the throne to be seen, except when the king comes in person to the Latoo. At the bottom of the lattice there is a gilt balustrade three or four feet high, in which the sun-umbrellas and several other insignia of state are deposited. The royal colour is white, and the umbrellas are made of silk of that colour, richly bespangled with gold.

BURMESE HOUSES.

The streets at Rangoon are laid out in straight lines crossing each other at right angles. The houses on each side are low, built of wood and covered with tiles, and on the sides of the roofs are long ranges of earthen pots, filled with water in readiness to be broken in case of fire. In front of each house is a slight latticed railing of bamboo, projecting into the street to the distance of four feet, over which space is spread a shade of bamboo mats, that reach from the eaves of the houses to the railing, forming a sort of awning. Few houses are built of brick, and those belonging to the royal family have rows of trees planted before them, forming a shady walk. The houses of the nabobs in the neighbourhood of the towns are handsome, they are situated in the centre of a court, and on a raised terrace surrounded by a balustrade. The Rhoom, or banqueting-halls of these houses, are generally ornamented with rows of pillars, but there is neither gilding nor paint bestowed upon them, such enrichments being strictly confined to the sovereign and the priesthood.—(Syme's Travels in India.)

PLATE XLVI.

AN ORIENTAL PAVILION.

The Arabian idea of a palace of unexampled magnificence founded on the known style of ornament, but so aggrandized, that supernatural power was required to give effect to the intention, is strikingly conveyed in the well-known Oriental tale of Aiaddin, who thus gives his instructions to the Genii of the Wonderful Lamp: "I would have thee build a palace to receive my spouse the Princess Badroulboudour. I leave to thyself the choice of the materials, that is the porphyry, jasper, agate, lapis-lazuli, and the fine marbles of the most varied colours. But I expect that in the highest story of the palace you shall build me a large hall with a dome and four equal fronts, and that instead of layers of brick the walls be made of massy gold and silver, laid alternately, and that each front shall contain six windows, the lattices of them, except one, must be left unfinished and imperfect, and be so enriched with art and symmetry, with diamonds, rubies, and emeralds, that they shall exceed everything of the kind in the world. I would have an outward and inward court to this palace, as well as a curious flower-garden. Besides this palace must be well provided with kitchen and offices, store-houses, and rooms to keep choice furniture for all seasons of the year. It must have stables full of the finest horses, equeries and grooms, and a hunting equipage. There must be officers to attend the kitchen, and officers and women-slaves to wait on the Princess. Thou understandest what I mean, therefore go about it, and inform me when all is accomplished."—*Arabian Nights' Entertainments.*

In the eleventh century, under the Arabian Kalifs, the Hindoo Idolaters became the prey of Moslem piety, and in the fourteenth century, India as a part of the Mahomedan empire, attained the climax of its glory. The buildings which at this period arose as if by power of enchantment, are not more astonishing in their number than in the vastness and the splendour of each. With all our romantic affection for the sumptuous Alhambra in Spain, we feel convinced that India will prove the sovereign name of Mahomedan design. Here the Patans, says Bishop Heber, "have built like giants and finished their work like jewellers; yet their ornaments, florid as they appear in their proper places, are never thrown away, nor allowed to interfere with the severe and solemn character of the pile." *

The Taje Mahl, a splendid edifice, exhibiting a vast exterior of white marble, is elevated on a terrace of the same material, but varied in colour by white and yellow courses. The windows are filled in with open lattice-work and rosettes of marble exquisitely carved; the pavement is in alternate squares of statuary and Sienna marble; the internal walls are encrusted and covered with flowers and inscriptions, executed in beautiful mosaic of cornelian, lapis-lazuli, and jasper, and yet though everything is finished like an ornament for a drawing-room chimneypiece, the general effect produced is rather solemn and impressive than grand.† We conclude our allotted space with a quotation from the author of "Sketches in India." He says, speaking of the Taje Mahl, "The whole, whether seen inside or out, (as the climate is not corroding,) looks as if just fresh from the hands of the architect. Its delicacy may be in some degree gathered from the expression of Zoffani, an Italian painter, who, after long gazing upon it with fixed admiration, said, that it wanted nothing but a glass case of sufficient magnitude to cover and protect it. He visited it again by moonlight, a light, soft and well adapted to give effect to the cold, clear polish of the dome." But, after all, how poor, how mean, are all the associations connected with it! It is a monument of the boundless exactions of a beauty's vanity, of the yielding folly of a proud voluptuous slave-governed sensualist, for such was Sha-jehan.

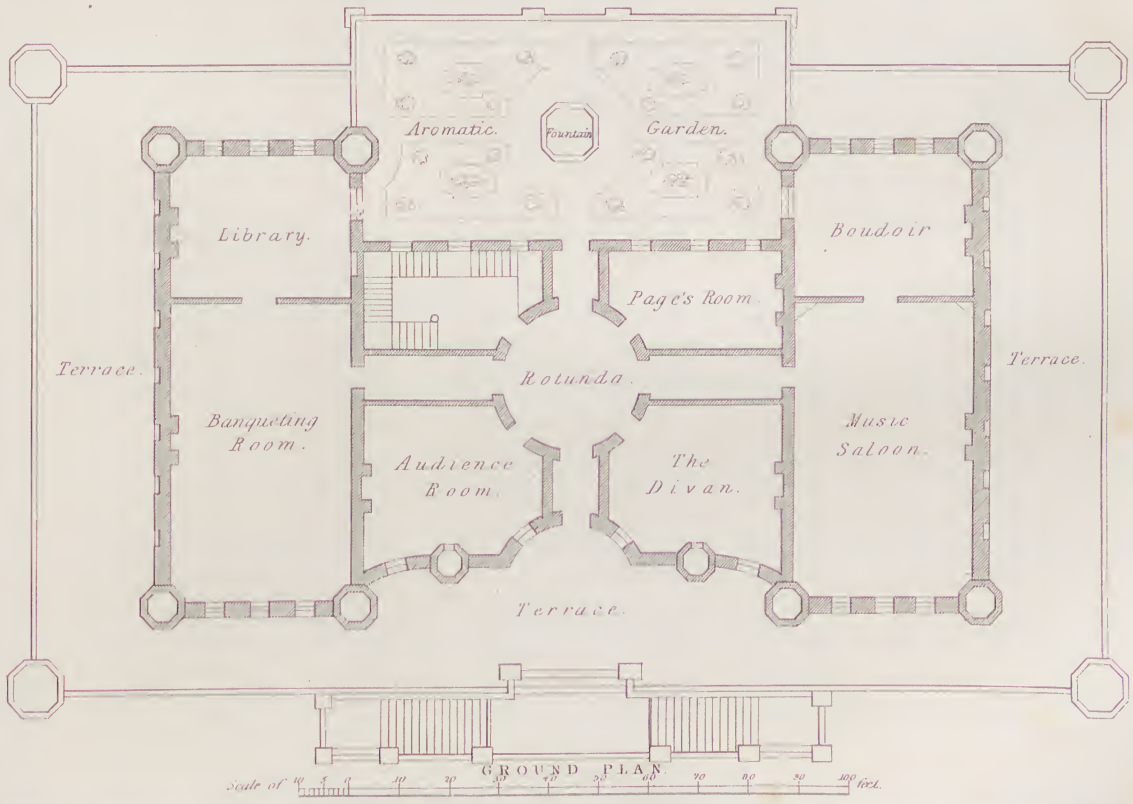
* The Mahomedan architects were not only attentive to emblems and attributes, but also great observers of proportion in the several masses, and of the whole of their works. They also denounced on the occupiers of those houses, where it had not been observed; of this we are assured by an Arabian writer (Manasara.) Woe to them, says he, who dwell in a house not built according to the proportion of symmetry.—(Manushyalaya Chandrica.)

† The new Oriental gate to the royal pavilion at Brighton is in this style of architecture. You may observe there, that the bulbus dome of India resembles in outline that of Persia; also here, as in all Mahomedan countries, we recognize the custom of combining the square with the curve, the arched-head with the regular panel. The lantern turrets crowned with domes on the angles of our pavilion, and the perforated watch-towers at the extreme corners of the terrace are features very peculiar, and generally employed in Oriental Mahomedan edifices in India.—(See Daniels' Oriental Views.)

AN ORIENTAL PAVILION.

PLATE XLVI.

PRINCIPAL ELEVATION.



GROUND PLAN.

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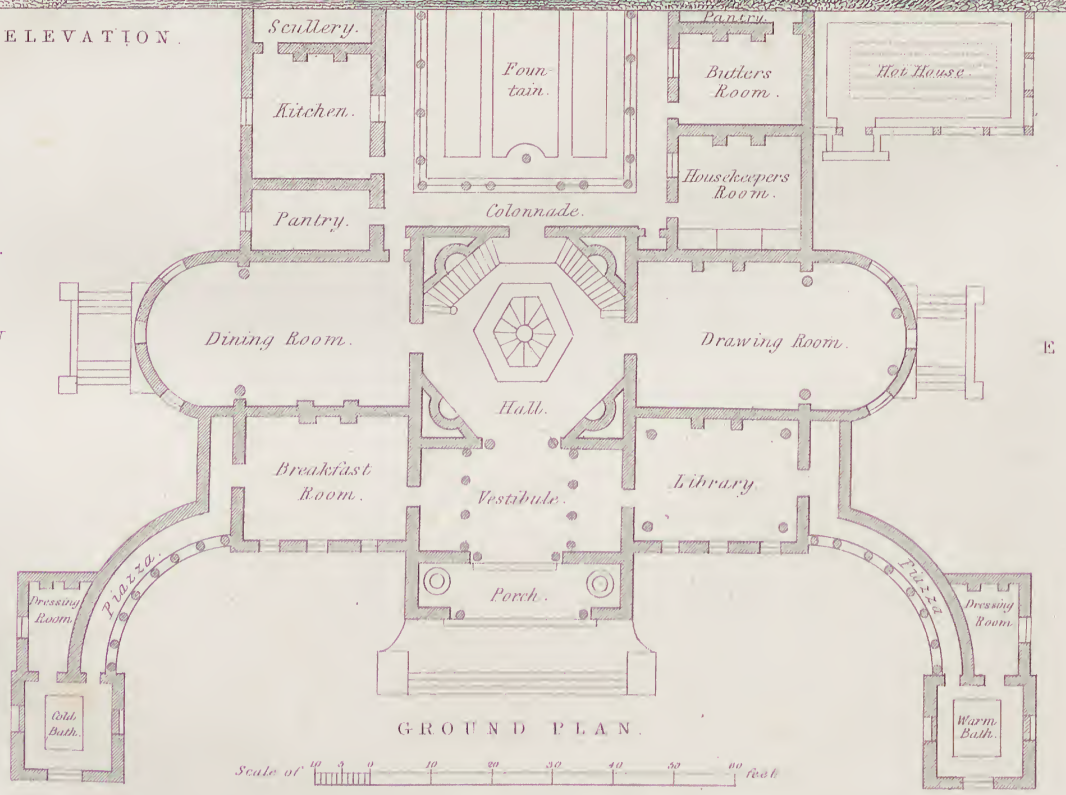
A MORISCO-SPANISH PALITAL BUILDING.

PLATE XLVII.

ELEVATION.



GROUND PLAN.

R. Brown, Arch.t

Engraved by H. Adlard.

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PLATES XLVII.—XLVIII.

A PALATIAL BUILDING IN THE MORISCO-SPANISH STYLE.

"Mother of pearl, and porphyry, and marble,
Vied with each other in this costly spot,
And singing birds without were heard to warble;
And the stained glass, which lighted through the grot
Varied each ray, but all description garble
The true effect, and so we had better not
Be too minute, an outline is the best,
A lively reader's fancy does the rest."—LORD BYRON'S *Don Juan.*

A SKETCH of that singular building, the deserted Moorish palace of Alhambra, situated in the citadel of Granada, in Spain, and the prototype of our annexed design will sufficiently illustrate this style of architecture. The palace, when in its glory, to use the beautiful simile of an Arabian writer in the days of Gusef, was a silver vase filled with emeralds and jacynths. It was in the reign of Mahomet II. that this famous palace of Alhambra was commenced,* when those people the Moors had conquered and settled in this place,† a great part of which palace still remains to astonish those travellers whom its name alone attracts to Granada, and proves to what a pitch of perfection the Mussulmen had carried that art, so little known to the European, of splendid magnificence subservient to the purposes of voluptuous pleasure. Nothing of what we know of architecture can give us any representation of that of the Mussulmen. They heaped up buildings without order or symmetry, without paying attention to the aspect they offered from without; all their care being to adorn the interior, on which they exhausted the resources of taste and magnificence, to combine in their apartments the accommodations of luxury with the charms of nature. There, in saloons lined with marble, and paved with shining delf, close to luxurious couches, covered with cloth of gold and silver, jets-d'eau spouted up to the vaulted stalactite ceiling, the most precious vases exhaled perfumes; and living myrtles, orange-trees, and flowers, growing in beds around the fountains, added to their fragrance. The palace, seated on the Sierra del Sol, or the mountain of the sun, overlooked the city of Granada; but did not present any regular front, and was approached by a promenade, having several winding walks, intercepted frequently by a rivulet, which meandered among trees of luxuriant foliage. The portal of the palace consists of a large square tower, which was formerly called the Gate of Judgment; an inscription of a religious nature points out that it was there the king distributed justice, according to the ancient custom of the Hebrews, and of the people of the East. On entering the northern side of this ancient abode of the Mussulman king, one is led to suppose himself transported to the land of the fairies.‡

* The word Alhambra signifies a red house, which is the colour of the stones of this palatial edifice.—(Sir John Carr's Travels in Spain.)

† The Moors became possessed of Spain in the following manner. In the reign of Witiza, the predecessor of Roderick, the conquest of Spain was attempted by Moosa. His troops, landing at Gibraltar, vanquished the Goths that were here under the usurper Roderick, A.D. 711. In a short time their dominion extended over the whole of Spain, with the exception of the Asturias. The reign of the Moors lasted here seven hundred and eighty-one years, till the time of Ferdinand and Isabella, when the taking of Granada, A.D. 1492, put an end to their kingdom.—(Powers's History of the Moors in Spain.

‡ The grand porch of the gate is formed by an immense Arabian arch of the horse-shoe form, which springs to half the height of the tower; on the key-stone of the arch is engraven a gigantic key. The hand is said to be the emblem of Mahomet's doctrine, and the latter the key of faith. The Moorish king who built it, was reported to be a great magician, and had laid the whole fortress under a magic spell. This spell, the tradition went on to say, would last until the hand on the centre arch should walk down and grasp the key, when the whole would tumble to pieces.—(Irving's Alhambra.)

The first court is a square with arcades and galleries, the walls and ceilings of which are covered with Damascus mosaic workmanship. In the midst of this court, paved with white marble, there is a large reservoir or basin filled with running water, which was formerly inclosed on either side by borders of shrubs and flowers, and walks of large trees. This place was called the Mesnar, or common baths of those Moors attached to the service of the court. The passages from them lead to the Quartode los Leones, or Court of the Lions, which is one hundred feet in length by fifty in breadth. Here a colonnade of white marble supports a gallery, which reaches along the whole extent; the columns are placed in pairs and sometimes in triples; they are slender to a singular degree; from which spring peach-leave Gothic arches with cusp edges, nine in each arch; but the lightness of the columns, and their graceful effect, is peculiarly pleasing to the astonished eye. The walls, and above all, the ceiling of this surrounding piazza, are covered with gold, and azure paint in arabesque stucco work, and executed with a degree of care and delicacy, which our most skilful modern artist would find it difficult to imitate. In the middle of those Damascus flower-pieces with which the walls are incrusted, and the ornaments always varying, we read these passages from the Koran, "God is great; God is the supreme conqueror; There is no God but God; Celestial gaiety, exultations of heart, and delight of the soul await those who believe."*

On the south side of the Court of the Lions is the hall of Abbencerrages, the cupola of which is extremely beautiful. (Vide Plate XLVIII. annexed.) The Abbencerrages were a numerous and illustrious family, who having incurred the displeasure of the Moorish King Boabdil, many of whom were enticed into this hall of the palace, (which now bears their name) one by one, where their heads were immediately struck off into the fountain. Upon the survivors hearing of this piece of treachery they headed the people of the city of Granada, and the Moorish king fled for security to Barbary, and Spain again fell into the hands of Ferdinand and Isabella.†

MOORISH PALACE GARDEN.

"On quitting the Alhambra, we enter," says Power, "the famous garden of Generalif, which name implies in Arabic, 'the habitation of love.' In this garden was a palace built in the same style as the Alhambra, and characterized by the same magnificence in which the king of Granada used to pass the spring of the year. The palace no longer remains, but the Generalif still possesses its picturesque situation, and its points of view so varying and always pleasing. The fountains and cascades which played on every side, the retiring terraces which rise one above another, paved with mosaic work, are now shaded by immense cypress-trees, and ancient myrtles, which in their younger state afforded a shade in former times to the king and queen of Granada. At the present day the thickets flourish, and the finest of fruit-trees are intermixed with gloomy groves, with pavilions, and turban domes. Nothing remains of the former grandeur of Generalif but what it was impossible to take away, and yet it is that place on earth which speaks most powerfully to the eye and to the heart, and which the Moors imagine they shall again possess."

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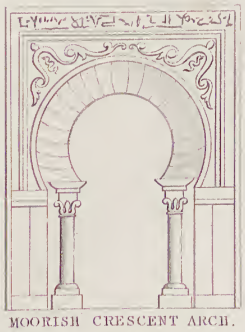
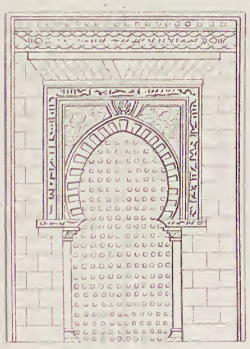
* Du Peyron bagayae d'Espayne, vol. i. p. 195.

† It is not necessary to describe at length the other remains which are still left of the Palace of Alhambra. One served as a hall of audience or justice; another contains the baths of the king, the queen, and their children, and we can yet see their bedchambers, where the couches are close to a favourite fountain, placed in alcoves covered with delf. In the saloon of music four elevated tribunes were filled with choice perfumery, whilst the whole court were seated on carpets round a basis of alabaster. In the chamber where the queen dressed herself or said her prayers, from which the view is endearing, is a slab of marble, pierced with an infinity of apertures to permit the exhalation of the perfumes which were burned incessantly in the vaults beneath. Throughout the whole, the windows, doors, and openings are managed in such a manner as to afford seats the most cheerful. The effect of light is so modified as to produce the most pleasing repose to the gratified eye. In every apartment two currents of air were continually in motion, apertures being formed near the ceiling to discharge the warm and unwholesome air which the pure inferior current forced upwards: so well directed were these currents of air as to come refreshed every instant with that delicious coolness breathed only in this edifice. Also in the winter season warmth by means of tubes of baked earth placed in the walls, was diffused from subterraneous tunnels, not only to the lower apartments, but to all the contiguous upper apartments where warmth was required.—(Power's History.)

MOORISH HALL, AND ARABESQUE DETAILS.



MOORISH CRESCENT ARCH.



ARABIAN DOOR.

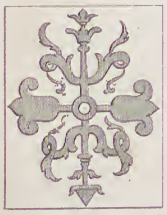
ARCH FROM CORDOVA.

DAMASCUS STUCCO WORK.

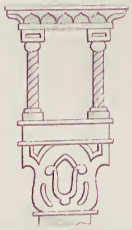
FRETT WORK.

WALL TILE CASING.

MARBLE PAVEMENT.

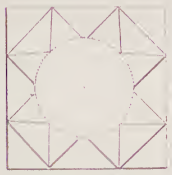


ARABESQUE ORNAMENT.



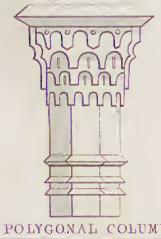
TRIPLE COLUMNS.

CAPITAL OF COLUMN.

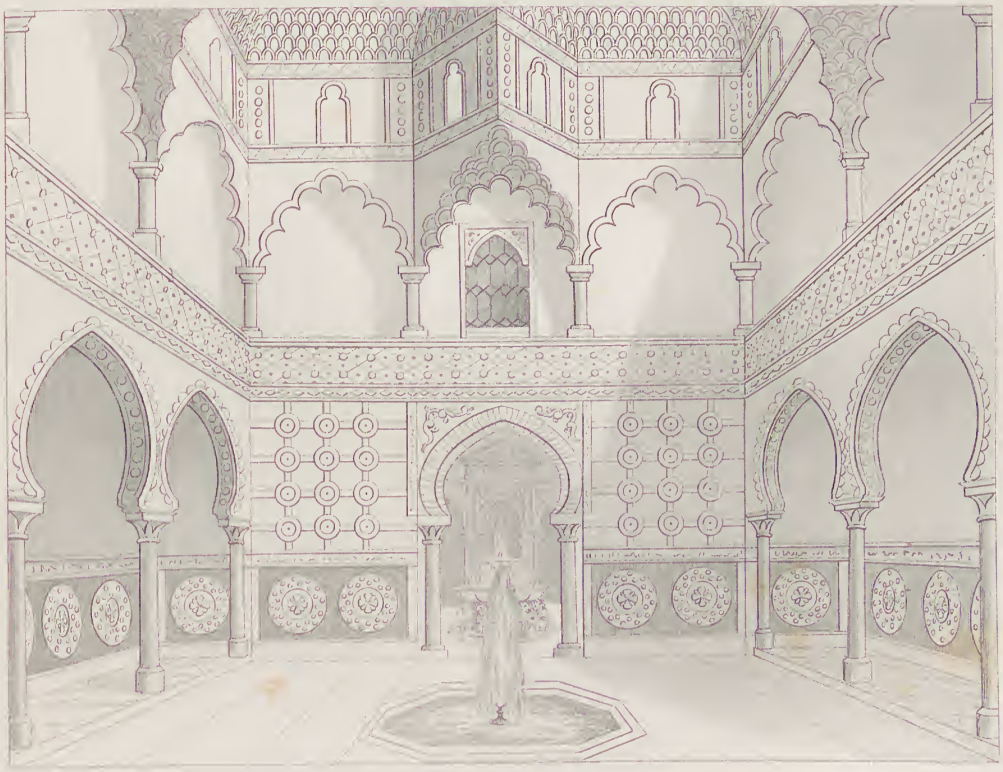


PLATFOND CEILING
ICHNOGRAPHY.

CAPITAL OF COLUMN.



POLYGONAL COLUMN.



AFTER THE HALL OF THE ABENCERRAGES, ALHAMBRA.

R. Brown, del.

Engraved by H. Adlard.

LONDON PUBLISHED BY GEO. VIRTUE, 26 IVY LANE.

A NORMAN CASTLE, AND LANCASTERIAN MANSION.

AN ANGLO-NORMAN CASTLE

A LANCASTERIAN, EMBATTLED MANSION, HENRY VI STYLE

PLATE XLIX.

A NORMAN FEUDAL CASTLE AND LANCASTRIAN MANSION.

"Yes—ye moss-green walls,
Ye towers defenceless, I revisit ye;
Shame-stricken. Where are your trophies now—
Your thronged courts—the revelry—the tumult,
That spoke the grandeur of your house—the homage
Of neighbouring barons?"

CASTLE OF ELLANGOWAN, *Guy Mannering*, vol. II. c. xii.

THERE is little found recorded relating to castellated architecture during the Anglo-Norman period, England at that time receiving from Normandy her artificers and arts, which that comparatively enlightened people had cultivated. The Normans were a nation fond of military state and splendour, and William having conquered England, and distributed the chief estates in this kingdom amongst his barons, and introduced the feudal law, a fortified castle became necessary on every barony; hence they spared no cost upon the edifice, which was always erected upon a promontory: grandeur, security, and defence, being equally consulted. Of the very few which still remain occupied, these only convey the resemblance of the ancient baronial residence; our customs and manners have so completely changed them, that a castle with its internal apartments, arranged agreeably to their original destination, would not now be habitable. The plan was regulated by the site, and the various angles and outworks for defence made to correspond with the irregularity of the ground. The walls were of immense thickness, and towers rose at various heights. The large central keep commanding a panoramic view of the domain. The pile had but few apertures and those were small, ornamented with little pillars at the sides, and zig-zag semicircular archivaults above. The gateway was provided with a portcullis and drawbridge, and further protected by a moat. The area around the donjon, or keep, within the centre of the castle walls, was divided into two wards, and the forecourt, used as a military theatre, where the baron, his knights and esquires, engaged by turns in the chivalrous tournaments of the age.*

A LANCASTRIAN MANSION.

Previous to the Lancastrian period, that of the Plantagenet, the habitations of the nobles were those of castles. In the reign of Henry VI., when a change took place, the manor-houses were still embattled,† but more for ornament than use. They had small octagonal turrets at the angle of the building, but without a central tower, and the domestic style of this period in lesser mansions consisted of gables, with walls of half-timbered work, on a stone foundation; the projecting framing of the mansion being formed into curious and picturesque devices of herring-bone, and scroll-work. The windows were in series, parted by mullions, and with semicircular heads, (Lysons.) Of this character is Ockwell House in Berkshire, still standing. In the larger mansions, which were built partly of brick and of stone, the decorations were more highly finished. Those had oriel and bay windows, such as may be seen in our accompanying design, and the doorways accorded with the enriched style of the age.

* The baron went forth in the morning to the chase, and returned in the evening accompanied by his knights and esquires, and attended by a retinue of yeomen and vassals; in fact, the feats of the field concluded with festivity in the hall, during which time the shield of each knight was suspended behind him. This first introduced carving as an internal embellishment into banqueting-halls. It is also further necessary to remark as to family surnames, that they were introduced into Britain by the Normans, and at that time confined to the barons, who most commonly took them from the castles in which they resided, and from the domain which they possessed.—(Camden's Remains, p. 113.)

† Crosby Hall in Bishopsgate Street, London, is a fine remaining exemplar of the reign of Henry V.—(Author.)

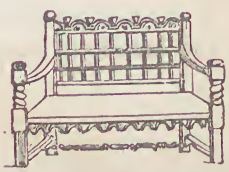
PLATE L.

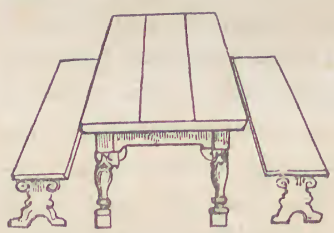
A PLANTAGENET CASTLE, EDWARD III.'S STYLE.

——— "Long could I have stood,
With a solemn awe contemplating
That mansion
With narrow windows and vast buttresses,
Built to endure the shocks of time and chance."—ROGERS.

CASTELLATED architecture, like sculpture and painting, was greatly improved under the first and second Edwards, and that it attained a high degree of magnificence and splendour in the reign of Edward III., we have many edifices to attest. Such is Lancaster Castle, in its boldest form, with overhanging battlements resting on arched machicolated consol cornices, and Kenilworth Castle, the subject of one of Sir Walter Scot's novels. The kingly palace at Windsor we have previously noticed. Of Kenilworth, Mr. Britton, in his Architectural Antiquities, has given a ground plan, from which a good idea may be formed of what it was in its prouder days. Everything essential, either as a residence or a fortress, seems to have been contained within the sweep of its encompassing battlements. Its south-east and west sides were surrounded by a broad belt of water, which could be carried round the walls. Out-jutting towers of defence guarded it at every point. The interior comprehended two courts, a large garden, and a tilt-yard, surrounded with splendid galleries for the accommodation of the spectators. The inhabited part consisted of various suits of apartments, many of which seem to have been of the most superb description. The great hall, which was built by John of Gaunt, was of the dimensions of eighty-six feet in length by forty-five in width.

SETTLE.





HALL-TABLE.

PLANTAGENET CASTLE FURNITURE.

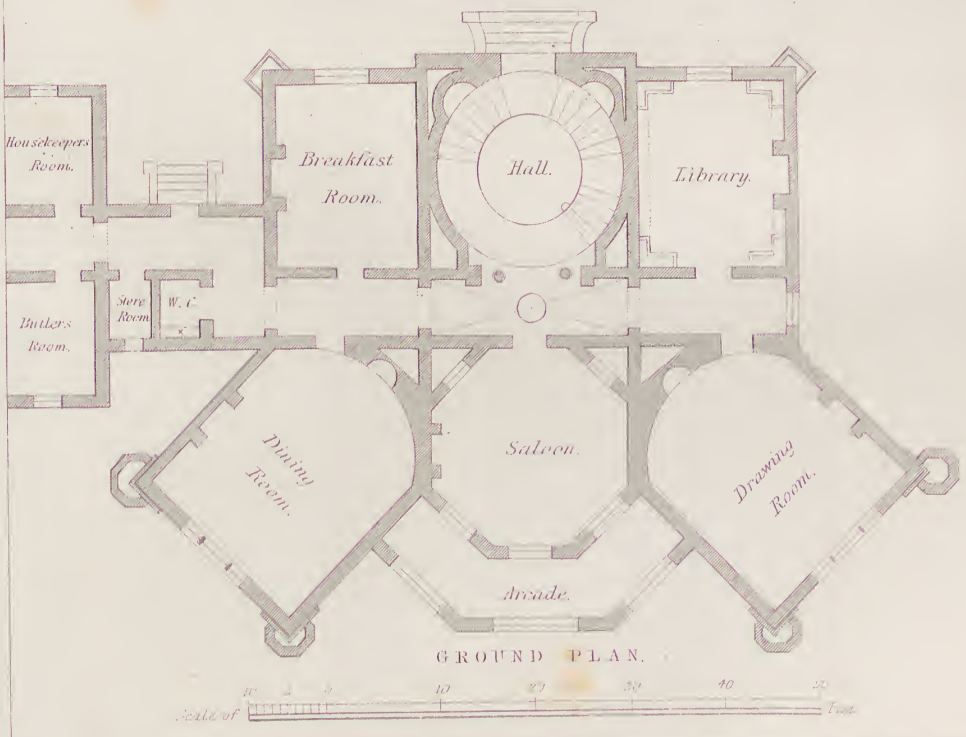
During the reign of Edward III., the carved timber roofs of the banqueting-halls were most splendid. The tables, it is conjectured, were only massy boards placed on trussels, whence the modern term board, the seats or forms proper to sit on were sometimes mentioned as stools, of which some were covered with leather, stuffed, while the tables were covered with carpets. The settle, now confined to kitchens, and seen in old farm-houses and old mansions, is of very ancient date. Crenelated chairs and machicolated bedsteads, thus mingling castellated features with castellated furniture, are the most consistent for this style of domestic architecture, whereas in every other style it would be out of place. Tapestry arras, commonly described as hangings, enriched the walls of superior apartments from very early times: the walls were not then plastered. Wassail bowls and horns were at this period used for drinking vessels, and polished steel for mirrors, looking-glasses not then being known. At Kenilworth was held a grand tournament in 1279, known by the name of *The Round Table*, from the manner in which the guests who attended the festival were placed, in order to prevent all disputes as to precedence. A hundred ladies were present, and as many knights, many of whom were foreigners, who had, in the tilt-yard, displayed their skill and prowess against each other with horse and lance.—(Grose on Castles.)

PLANTAGENET CASTLE GARDEN.

At Kenilworth the flower-garden consisted of two acres adjacent to the castle, between which and the garden was a terrace twelve feet broad and ten feet high, which sloped towards the garden, and was covered with turf. Along the terrace at sundry distances on pedestals were set obelisks, spheres, and white bears, carved in stone; at the ends were flowers and odoriferous trees. The garden was divided into four quarters, and had cross-alleys; in each quarter was placed an obelisk fifteen feet high, and surmounted with an orb or globe. In the centre of the garden was a fountain stocked with various fish; in the middle, on a pedestal, was Neptune, with his trident and marine horses. There was Thetis in her chariot, drawn by her dolphins, and Triton by his fishes. Here was also Proteus herding his sea-bulls, and there Doris and her daughters; all which were not much inferior to Phœbus gates, as described by Ovid in his Metamorphoses. In this garden was also a sumptuous aviary for birds, thirty feet long, fourteen broad, and twenty high, placed against the wall, into which were holes for heat, for coolness, for refuge from weather and roost at night. There were also evergreen trees, boxes for various meats, and vessels for water.

A PLANTAGENET CASTLE, EDWARD III STYLE.

GEOMETRICAL ELEVATION.



GROUND PLAN.

TUDOR GATE-HOUSE, AND STUART LODGES.

GATE-HOUSE, HENRY VIII STYLE.

GROUND PLAN.

LODGES, JAMES I STYLE.

GROUND PLAN

PLATE LI.

TUDOR GATE-HOUSE, AND STUART LODGES.

"After the extinction of the Norman line to the Reformation, the king's warrant was as necessary to inclose forest-ground and to surround a park with a wall, as it was to have a license to embattle the mansion."—ECHARD'S *History of England*.

PARKS were first introduced into England by the Normans, for the purpose of hunting, an amusement which constituted the whole business of their lives. Harrison, the old English historian, says, "At the coming of the Normans they added this calamitie to the servitude of our nation, by making men of the best sort, furthermore, to become keepers of their game, whilst they lived in the meantime upon the spoile of their revenues, and dailie overthrew towns, villages, and an infinite number of families for the maintenance of their venerie. Neither was anie parke supposed in these times to be statelie enough that contained not at least eight or ten hidelands, that is, so manie hundred acres or families, of which one was sufficient in old time to maintain an honest yeoman."

The park-entrance is a highly interesting object where it has a display of heraldic badges, decorations which have from the introduction of the science been greatly esteemed, especially by the Tudors, and from their peculiar advantage of combining adornment with utility, are the most suitable embellishments for this species of architecture. In all edifices nothing establishes the date of their erection so well as the cognizance of the owner who built them. Raby Castle, in the county palatine of Durham, presents a very early instance of both the arms and cognizance applied to domestic architecture. Three shields of the Nevilles are upon the Gate-house; and the Bulmer-tower of the same edifice was distinguished by the badge of a bull and two large B's; but the bull has been removed from the tower, and placed over the farm entrance. Hurstmonceaux Castle, in Sussex, has a panelled compartment over the gateway, sculptured with the alant or wolf-dog, holding a banner or the arms of Fiennes, round the staff of which is entwined a scroll, with the motto; LE ROY LE VEVT.

STUART LODGES.

The accompanying lodges in the subjoined Plate in the Stuart style were designed by the author of this work for Lady Holland, to be built at the entrance to the park belonging to Holland House, at Kensington, in 1831. They were made to accord with the present old mansion, which edifice was erected in 1609, by Sir Walter Cope, of Hanwell, in Oxfordshire, and Bramshill, in Hampshire. This house descended through his daughter, Isabel, to her husband, Henry Rich, Earl of Holland, in the reign of Charles I. The building, which is a fine exemplar of the Stuart architecture, consists of a multitude of undulating gables, and towers with concave roofs: the centre mass recedes in front, the two sides of which have colonnades. The house is built of red brick, and the dressings of Caen stone, brought from Normandy. Speaking of entrance-lodges, Mr. Gilpin says, they may be determined in their style of architecture by some peculiarity in the situation that is near them. This we assert is entirely wrong, and more particularly where the mansion is in view; the principle of unity seems to require that the style of the lodges and gateways should always correspond with that of the seat to which they belong, as well as the heraldic devices which mark the consequence of the proprietor, the greatness of his domain, and serves as a sort of index to the style of living which may be expected at the hall or baronial castle to which they lead. Surely nothing could be more out of place than a Tudor lodge to a castle, or a castellated lodge to a Tudor mansion.

PLATE LII.

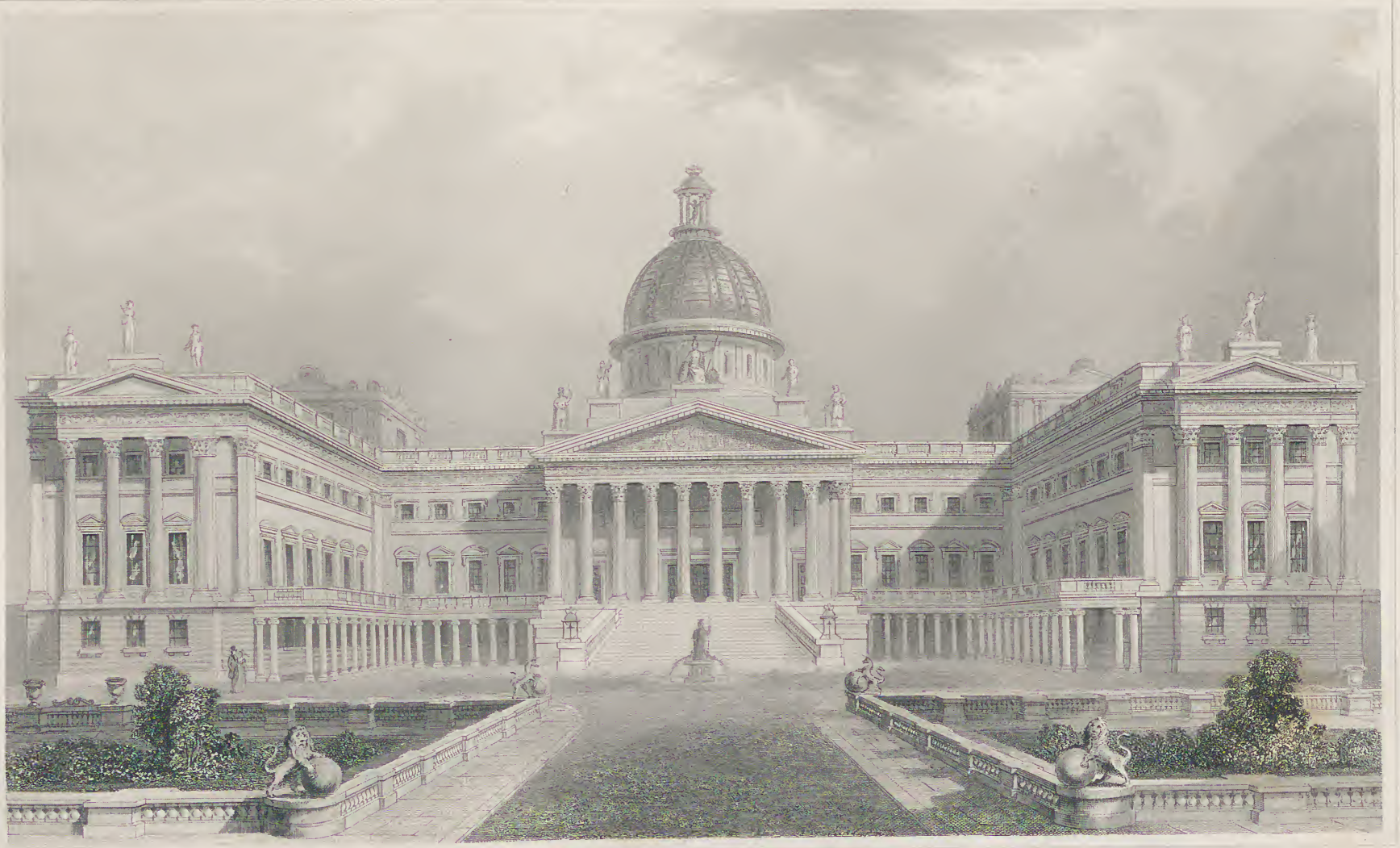
A ROYAL PALACE, PALLADIAN STYLE.

" Where yon spread trees wave o'er the crystal stream,
And show inverted to the solar beam;
There, where the margin's daisy mantled side,
Shelves down to kiss the congregated tide,
An ancient palace stands, the lov'd retreat
Of Britain's monarch from the toils of state."—WINDSOR.

LORD CHANCELLOR BACON'S PLAN FOR A ROYAL PALACE.

WE will now describe a royal palace, making a brief model thereof; for it is strange to see in Europe such large buildings as the Vatican at Rome, the Escurial in Spain, and some others which might be named, with scarce a fair room in them. First then, I say, you cannot have a perfect palace except you have two several sides: one for the banquet, as spoken of in the Book of Esther; the other for the household: the first for feasts and triumphs, and the other for dwelling. I understand both these sides to be not only returns but parts of the front, and to be uniform without, though severally divided within, and to be on each side of a great and stately tower in the midst of the front; that as it were joineth them together on either hand. I would have on the side of the banquet in front one goodly room above stairs of forty feet high. On the other side, which is the household one, I wish it divided into a hall and a chapel, both of good state and largeness, and these not to go all the length, but to have at the further end a winter and a summer parlour. As for the tower, I would have it in two stories of eighteen feet high each, and the same to be divided into rooms, as shall be thought fit; and on the top of the two wings, statues. Beyond this front there is to be a fair court, but three sides of it of a far lower building than the front, and in all the four corners of that court fair staircases cast into turrets. Let not the court be paved, for that striketh up a great heat in summer and much cold in winter, but only the side alleys and the quarters of grass kept shorn. On the household side there must be chambers of presence and ordinary entertainment rooms. Let both wings be double-roomed, without cross-lights, that you may have rooms both for summer and winter.

Beyond this court let there be another of the same square and height, which is to be environed with the garden on one side, and upon arches as high as the first story. On the under story towards the garden, let it be turned to a grotto or place of shade, or estivation, and only have openings and windows towards the garden, and be level upon the floor, and let there be a fountain or some fair work of statues in the middle of this court. The buildings here to be for privy lodgings on both sides, and the end for privy galleries, whereof you must foresee that one of them be for an infirmary, if the prince or any special person should be sick, with chambers, bedchamber, " artecamera and recamera" joining to it. Upon the ground-story, have a fair gallery open upon pillars to take the freshness of the garden. At both corners of the further side, by way of returns, let there be two rich cabinets, finely paved, richly hanged, glazed with crystalline glass, and a rich cupola in the midst, and all other elegance that may be thought upon. In the upper gallery too, I should wish there to be, if the place will admit of it, some fountains running in divers places, with some fine avoidances. And thus much for the model of the palace, save that you must have before you come to the front a green court with a fountain in the centre. As for offices, let them stand at a distance, with some low galleries, to pass from them to the palace itself.



J. Brown, Arch.

Engraved by H. Adlard

A ROYAL PALACE, PALLADIAN STYLE.

ROYAL PALACE STABLES.

FRONT ELEVATION.

R. Brown Arch.

LONDON PUBLISHED BY LEO PLATE, 46 [illegible] LANE.

PLATE LIII.

ROYAL PALACE STABLES.

"The architecture of coach-houses and stables should always partake of the same style as that of the palace to which they belong, but the ornaments to be subordinate or in an inferior degree."—PALLADIO.

ALL architectural appended buildings as well as stables should obviously partake of the character of the palace, not only in point of general effect, but in proportionate dimensions and in the same architectural style, as a leading principle. Unity of architectural character with a mansion is also essential in all buildings which belong to it, and are in its immediate vicinity, or where seen before a view is obtained of the house; for here a marked and different style would create false expectations in the spectator as to that of the principal object. As to the situation of palace stables, they should always be placed in the rear, and in a warm situation to the north-west, concealed by an amphitheatre of trees, and to be at some distance from the palace; but they must not be at an immoderate distance. In the annexed design for stables and coach-houses, the loft story over the stalls are for hay, straw, corn, &c., and have close joint-tongued floors to prevent the dust from falling through on the horses. The corn is let down to the manger by a funnel passing into a square shute, which shute has two sliding stoppers, and the space between the slides being adjusted so as to hold a feed for any quantity of horses, it is readily measured out, which when done, the lower slide is then locked up by the head stable-keeper. There is a covered way to be constructed within the inner quadrangle in front of the stables where the horses are brought out to be cleaned, and under which they are sheltered from the weather. In the centre of the quadrangle is the pump, which is to be roofed over like a temple. The bell turret contains a room where is to be lodged one of the grooms as a protection to the premises. All the litter of the stables is to be cleared out every morning, and wheeled into the dung-yard at the back or rear of the coach-houses on the north side.

BREAKING-HOUSE.

On the left of the stables, which is entered through the arch of the left wing, is to be a place for breaking-in horses of a superior degree for riding and leaping. There is also to be a place for breeding, and stalls for hunters and race-horses. This building is intended to be on the plan of an oblong square, and to have a passage between this edifice and the palace stables as a road to the back or north side, where the dung is to be wheeled and deposited.

RIDING-HOUSE.

On the right-hand side of the stables is intended to be a riding-house, and entered through the archway on the right-hand wing of the stables, and to have a passage-way between this building and the stables to lead to the back. Riding-houses are a luxury not often wanted in villas or mansions. The form of a riding-house is frequently that of a parallelogram, but that at Brighton belonging to the Royal Pavilion is circular, which we consider the best form; but when the latter is adopted the diameter should not be less than one hundred feet, the centre of the circle may contain a single column, with ribs branching from a capital every way to support the roof, though it is more convenient for the exercise of horsemanship to construct the roof without any middle supports from the ground. In circular riding-houses, galleries are sometimes placed round a single column, and sometimes within a circle of columns, ascended by a spiral staircase within the centre.

PLATE LIV.

ROYAL PARK ENTRANCE.

"Thy forests, Windsor, and thy green retreats,
At once the monarch's and the muses' seats."—POPE's *Windsor Forest.*

A ROYAL park has always been a necessary appendage to a palace for equestrian and pedestrian exercise, and for aquatic excursions on the broad and meandering waters, as well as for forest sports. Among the royal demesnes Windsor Park stands proudly pre-eminent, and is, indeed, one of the noblest in Europe, and every way worthy to encircle the castle of an English monarch. The objects in a forest-park are just what may be seen at Windsor; a large avenue leading direct from the castle, open glades stretching out in ample proportions, broken ground, set with trees, shrubs, underwood, furze, fern, &c.; all this is necessary for the covert of game. The grazing animals in a park of this description should be fallow-deer. On the ornamental waters should be swans and aquatic birds of every description and plumage. Islands should be formed on the lake for these birds nestling, roosting, and laying their eggs, and bringing forth their young; and certain harbours should be formed in the wood with amphitheatrical glades, some of which should look on the placid water. In those umbrageous belts should be placed summer seats, grottos, and sylvan temples.

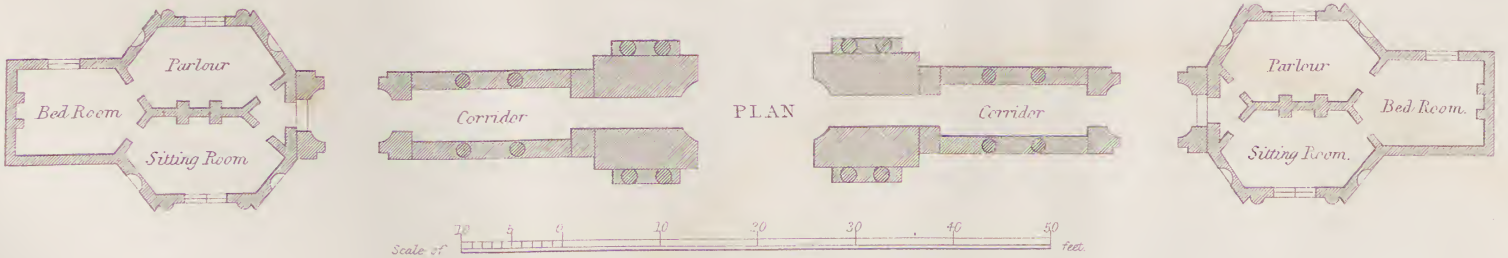
RECAPITULATION.

In taking a retrospective view of the discourse on the principles of designing public buildings and private dwelling-houses, we have stated that the principles of domestic architecture as an art of design and taste may be reduced to the three following divisions: namely, fitness for the end in view, expression, of the end in view, and appropriateness of architectural style. Now, fitness in architecture naturally embraces the suitableness of the plan and arrangement of the building for its intended uses, and the adjustment of the whole design; but the fitness or arrangement of a design for the uses for which it is intended, must necessarily depend on the knowledge which the architect possesses of such a building. Again, expression of the end in view comprehends the expression of the uses for which the building was erected, and the evidence of a suitable construction for that end: every building should express what it is, and every part of the edifice externally indicates what its particular purposes are. Lastly, expression of architectural style; in which nothing has been admitted that does not belong to that class or style of architecture which are required to be observed by the architect.

"The various styles of domestic architecture which have arisen at different periods, are easily recognised by every person of classical education as beauties of art, and as originally composed to be admired, and subsequently sanctioned by the admiration of ages. Hence it is that the architect who endeavours to effect his object through the medium of any known architectural style, will be much more likely to attain it, than he who depends for success on the abstract composition of forms and lines. Now, it must be obvious, that, in the employment of any of the architectural styles, the architect, to produce a satisfactory whole, must be governed by the abstract principles of composition already laid down, as much as if no style were resorted to. The principle of unity must govern a composition, whether it consists of mere walls with openings, or, as a painter would say, of mere light and shade, Grecian columns and entablatures, or Tudor gables and buttresses. Variety is also required for the Grecian as it is for the "composite," and as well in the mere forms as of the lines; even simplicity and chasteness are as necessary for the general form of a Gothic cathedral as they ar for a Grecian classic temple.

ROYAL PARK ENTRANCE.

ELEVATION



T. Brown, Archt.

Engd. by H. Adlard.

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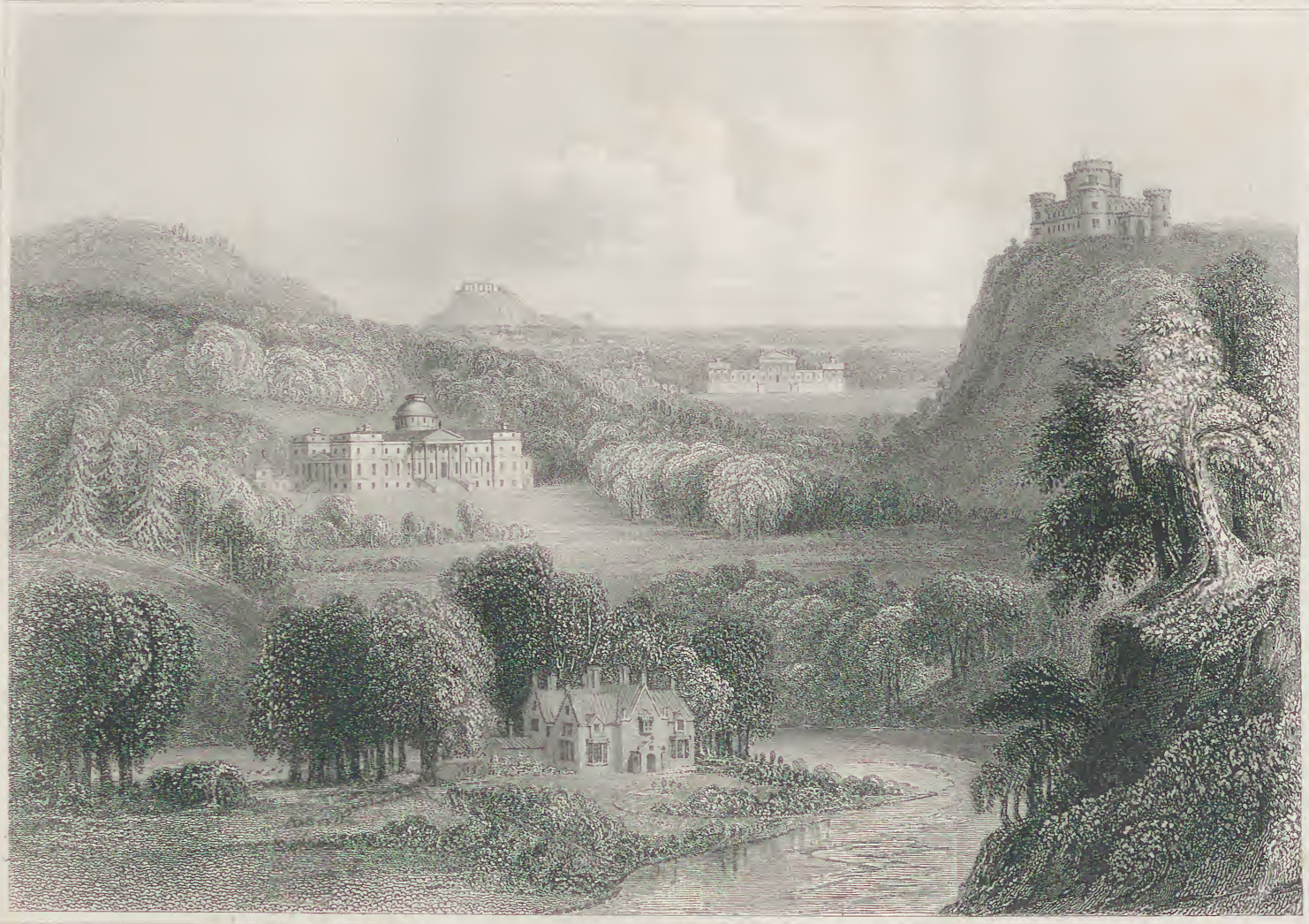


NORMAN, TUDOR, GRECIAN & ROMAN RESIDENCES: THEIR APPROPRIATE SITUATION & SCENERY

OBSERVATIONS

ON THE

EXTREME AND INTERMEDIATE SITUATIONS OF RURAL RESIDENCES;

THE

ARCHITECTURAL CHARACTER, SCENERY, AND CLIMATE OF EACH PLACE CONSIDERED.

PLATE LV.

SITUATIONS EXEMPLIFIED.

THE taste which prevails in rural architecture, and the desire for the enjoyment of country scenery are such as to render the choice of a situation, as well as that of the design for the residence, of paramount importance. The principal considerations as to the house itself, after that of the beauties in respect to the prospect has been duly considered, are, that such structure be not only rendered chaste, but also found in harmony and accordance with the surrounding scenery. We must likewise before we commence the design consider the salubrity of the air, the goodness of the water, the soil, and the means of access to the mansion. The next consideration is unity, or appropriating of the style of architecture to the spot; and, lastly, that of determining the aspect, and fixing the situation of the house on the ground.* The requisite domestic comforts and conveniences within the house, and the just appropriation of rooms, will necessarily depend on the practice and knowledge which the architect possesses. At the same time that the architect is required to select a spot every way adapted for a country residence; he is also to adjust the best rooms to the best views. And as unity is the fundamental principle of composition, so it is essentially necessary well to consider all the required arrangements, both internally and externally, in reference to home scenery, previous to the commencement of the design; and for this purpose we must call to our aid the sister art of landscape-gardening, it being obvious that the rural architect in some degree ought to possess those qualifications, for his occupation blends unavoidably into that art, when designing the various perspective elevations, as well as appendages appertaining to a country seat.

NORMAN CASTLE.—Those ancient baronial mansions were erected during the reign of the Norman kings, by those barons who had accompained the conqueror from Normandy to England, and on the highest eminences in this country, overlooking the domain which had been either confiscated or seized from the English nobles by that monarch, and given to his followers. From these fortified residences they overawed and kept in complete subjection to their wills their retainers, vassals, and dependants; but since the discovery of

† The choice of the aspect of a country house is important, as our health and comfort will be materially affected by it. The north aspect is cold and dreary: the east may be objected to on account of its blighting winds, and of the sun shining upon the house early in the morning only, though it is of importance that the dew or rain which has fallen in the night should be speedily absorbed in the morning. The west is objectionable, on account of an excess of sunshine. The south-west is not good, inasmuch as the rains are the most frequent from that quarter. The south is good, but the south-east aspect is universally considered to be the most desirable.—(Author.)

gunpowder these baronial and frowning piles have become generally untenanted and useless. Belvoir Castle in Leicestershire, the seat of the Duke of Rutland, pleasantly situated on the summit of a high conical hill, overlooking a beautiful vale below, (whence originated its name,) though a modern structure, possesses much of the ancient feudal character. Now, though this is the proper site for a baronial castle, yet it would be a highly improper one, and out of character, if adopted for that or any other residence of a different style of architecture. Where an extent of ground permitted, the choice of a good spot to be made on which to erect a country mansion, and the slope, the hill, and the valley were alike available, it would be but bad judgment if we did not avoid the extremes. Again, were a situation too elevated to be chosen, whatever might be the style of the architecture, whether appropriate or inappropriate, or however imposing the edifice and extensive the prospect might be, or even enchanting the panoramic view around, still much of its grandeur would be lost from the deficiency of a hill in the rear, as a back ground. It would here also be much exposed to bleak and piercing winds, and pelting rain and sleet in the winter, and unprotected and exposed to the sun's rays in summer; all those concomitants being injurious to the health of the residents. As to the home scenery, the cutting winds will act as a check to the growth of the vegetation, and will consequently deprive the mansion of those ornamental accompaniments so essential, and which contribute so powerfully to render the tout-ensemble interesting.*

Climate.—There are three degrees of altitude in eminences to be considered: namely, the moderate mound the high hill, and the lofty mountain; the mound is but a small eminence, while the hills in England rise to varied heights, and the mountains in Wales, such as Snowdon and Cader Idris, ascend almost to the clouds. The same may be said of Ben Nevis in the Highlands in Scotland. According to their heights so the air differs in degrees of temperature, which is ascertained by the barometer. But we have no instrument to ascertain in what degree one air differs from another in medical quality, since the composition of the atmosphere appears to be nearly the same on all points of the earth and ocean; but we know from observation, that there are great differences in the air as well as climate, as far as their effects on the human frame are concerned. In this division of our inquiry it is confined to that of the tops of hills and lofty promontories. Where the hill is of a moderate height, lying open to the south, and backed by others in the rear in the form of a crescent, we should pronounce such a spot salubrious and bracing; where the hill is lofty, open, and exposed, such situation would be severely felt, and on the tops of mountains would be insupportable, arising from the too great lightness of the atmosphere. Thus, on the mountain of the Simplon in Switzerland the climate has been found to vary considerably from the base to its top. At the bottom is found every vegetation growing in abundance, and one constant spring; about two thirds up the mountain the traveller becomes languid, and at the summit he is almost frozen with cold.†

Tudor Manor-House.—After the extinction of the Norman line and abolition of the feudal system in England by the Plantagenets, the barons deserted their promontories and high grounds, and, according to Harrison, the old English historian, then built their mansions on champaign grounds, where they continued

* The baronial castle consists of military architecture, being formed in the masses of round towers, and a large keep in the centre, having crenelated parapets, machicolated cornices, loop-holes, and tri-lobed windows, with outworks and drawbridge. The character of the baronial castle is that of stately grandeur; and as it carries the mind back to circumstances of romance and chivalry, it requires a bold promontory for its site, surrounded with romantic scenery of hill and dale, venerable trees, craggy rocks, and a broad river, meandering on its way through a glen or deep dell. Thus, whenever a castellated mansion is built upon a high hill, unaccompanied by its original and material fortified outworks of barbicans, bastions, watch-towers, portcullis, and drawbridge, it will be a folly set upon a hill, as well as being a bad subject for the painter's art; for wherever an edifice cuts the line of the horizon it will ever present a crude feature either in a picture or in a landscape. The motives and the objects of the painter and lanscape-gardener as to effect are precisely the same. On the other hand, as such edifices were originally never erected but on situations that afforded some natural means of defence, as before described, such as that of high eminences and promontories, some of which projected over deep rivers, and others on the coast jutting into the sea; so, likewise, to build such piles as castles in vales or on plains would equally be a violation of purpose and principle, and expose the architect and the owner who built it to the same ridicule for mimicking those baronial examples where the illusion neither was, nor could be kept up.—(A.)

† Notes of a Medical Traveller.

to dwell for some considerable period. When the Reformation took place in the reign of the Tudors, and individual property became secured to every subject in the realm, the lords of manors again removed, and then built their houses at the foot of hills, and at last descended into vales, there erecting houses on glades near the margin of some meandering river, where the mansions were surrounded with trees to shelter and protect them from the winter winds, and thus, as they supposed, to shield them from all malady; thus our forefathers ran from one extreme into that of another. Now, as all excesses are condemnable, so low grounds and valleys as well as high grounds and promontories should be avoided. When a house is placed in a low situation, however surrounded by luxuriant foliage, or enlivened by running streams, an unpleasant feeling is produced in the mind; here the eye also turns with abhorrence from the cold and dreary situation, where no idea of comfort, fitness, or grandeur can be associated. Not only will the view here be so confined as to depress the spirits and affect the nervous system of the occupants, but a poor effect of the seat be produced in the tout-ensemble, by diminishing in the appearance the size of the mansion in consequence of the intervening foliage, which, though producing a picturesque effect, nevertheless most gentlemen are desirous of extending and showing their seats to the utmost extent. The house will also here be liable to continual damps and mouldiness, and by being overshadowed by trees, the free circulation of the air will be impeded, and the situation be found not only unpleasant but unhealthful.*

Climate.—The objections as to climate in valleys are, that they produce many complaints; first, colds, from the drafts up them in the winter season where they lie open to plains, like some of our streets leading out of squares where the wind rushes up with great fury, and in the summer, where the ridges on each side are lofty, with barren sides, through the reflected heat from the sun, producing vertigo, bile, nervousness, and hypochondriacism, and worse complaints if the valley is situated, near where

"The fog does o'er the marshes glide;"

for then malaria may be expected. Speaking of the valleys in Switzerland, Dr. Johnson says, "There are few portions of the earthy surface in these temperate climes better calculated for the deterioration, if not the destruction of life, than the valley of the Rhone. It is bounded on each side by steep mountains four or five thousand feet in height, and the intermediate ground contains all the elements that are found to operate against human health. The valley consists in some places of a rich, flat, alluvial earth, covered with corn, gardens, and fruit-trees; in others it presents swamps and meadows, others again coppice and woods, pine forests, &c., while brawling brooks intersect it in all directions, and often inundate it in their precipitous course from the mountains to the Rhone, which runs through its centre. Were this valley beneath a tropical sun, it would be the seat of pestilence and death. As it is, the air must necessarily be bad, for the high ridges of moun-

* As Tudor architecture consists in its masses and outlines of the vertical, and the angular forms, with gables, oriels, and pinnacles; so the accompaniments should be that of trees, with whose romantic and aged branches it blends in a very playful and pictorial manner; and so much was principle observed in the masses of this style of architecture to the adoption of scenery, that such country residences as were erected in valleys, and embosomed in trees, actually gave rise to those beautifully varied and high-clustering chimney shafts now so universally admired. The Tudor style of architecture from its extensive use in the mansions of this country at a time when some of the largest were built, has again come to be considered as peculiarly appropriate for country residences. Perhaps, as a British domestic style, it has more interesting associations connected with it than any other, and there is nothing in its forms and details but what may readily be adapted to every modern convenience and luxury; but we, nevertheless, think it important in this place again to draw the attention of gentlemen to the too frequent misapplication of the Tudor architecture. Now, however beautiful, picturesque, or admirable this style may be in itself, we say again what we have always insisted upon, that it is the selected situation on which the house is to be erected, that must at all times determine both the character of the design, and style of the mansion:—

For nature should the work direct,
Not fashion be the architect.—(MS.)

If, therefore, in designing a country villa, architects were to take hints for the forms and disposition of the masses from the ground, we should not then have such frequent repetitions of the same forms, and so many common-place structures. Surely this principle ought to be attended to even in the commonest cottage, for by it, even independently of architectural details, the interest created by such means may be much enhanced. By this means also a house will be made to appear to have arisen out of the situation on which it is placed, whether beautiful, picturesque, or grand, instead of appearing to have been brought en masse from some city or town.—(B.)

tains, which rise like walls on the north and south sides, prevent a free ventilation, while in summer a powerful sun beats down into the valley, rendering it a complete focus of heat, and extracting from vegetation and humidity a prodigious quantity of malaria. In winter the high southern ridge shuts out the rays of a feeble sun, except for a few hours in the middle of the day, so that the atmosphere is not sufficiently agitated at any season of the year." (Dr. Johnson on Change of Air.)

Grecian Villa.—No colony from the Grecian states has invaded or settled in England; we must therefore look to Greece for their villas, to be enabled to ascertain the sites chosen by those people for such country residences, which we find were chiefly on plains; at least, those were so situated in the suburbs of Athens, and so reported by historians, and seen in the illustrations of the works of travellers at the present day. According to the horizontal character of the Greek style of architecture, it appears to demand the elevated, gently-sloping plain, backed on the north by an amphitheatre of hills, clothed with varied verdure, and crested with the cedar and the cypress; in fact, both the site and the adjacent scenery should appear like classic ground, and not that of the rustic, for whatever comes to us from the Greeks has an air of chasteness and an irresistible claim to our admiration. By this their architecture and sculpture has justly obtained the same pre-eminence as the poetry of Homer or the eloquence of Demosthenes. As the Greek architecture is divided into three canons or orders, so we deem it proper to divide our remarks into the same number, by pointing out the peculiar character and accompanying scenery proper for each style of building. First, the Doric, its character being that of plainness, requires those level scenes in nature which are unadorned, as most appropriate or in unison, as an extended plain. Secondly, the Ionic being delicate and chaste, suits best with elegant and dressed scenery, and to be situated near the head of a verdant lawn, around which are plantations. Lastly, the Corinthian, that being in character the most enriched and ornamental, requires luxuriant scenery, refined by taste in all its associations. In forming a Grecian villa, our young architects uniformly study and compose from the sacred architecture of the Greeks instead of from their domestic, whereby they give their production the character of the temple, and to do this more effectually, they avoid all appearances of chimneys by the omission of their shafts above the roof, so that we are frequently at a loss to say whether we behold a dwelling-house, a public building, or even a temple itself. Now, notwithstanding this concealment of chimney-shafts, which we acknowledge too frequently disfigure a uniform building, we should greatly prefer their being seen, for the sake of giving to the structure the appearance of a dwelling-house. Indeed, the young architect may always bear it in mind as a principle, that all fac-simile imitations rank no higher than a servile copy, and that their genuine imitation, which belongs to elegant art, must be the imitation of the spirit and manner, not of mere masses and individual forms.*

Climate.—The climate on a plain must vary according to circumstances, whether the ground is situated high and inclined, or whether it is low and level; the elevated plain where the surface slopes to the south with a gravelly substrata, is thoroughly healthful, but where the plain is low, flat, and on a clay soil, it is then unhealthy, and where there is a level surface and stagnant water, malaria in the summer season must here prevail. Pisa, which is situated on an extensive plain, says Mr. Mathews, (Diary of an Invalid,) is the very best place on the continent for complaints of the chest during the winter season, and Nice, of which I speak from

* The Grecian style of architecture may be considered as the opposite to that of the Tudor, the former being composed of horizontal lines the latter of vertical. The Grecian is characterized by porticos or peristyles of columns, supporting pediments joined to buildings of a parallelogram form, embellished with a chaste and beautiful description of elliptical, parabolical, and hyperbolical mouldings, and enriched honeysuckle and foliage ornaments in detail. In applying pure Grecian architecture to modern practice there exists a great difficulty, as is evident from the buildings among the Romans, as well as from the want of success which has attended the attempts that have hitherto been made in England to introduce the Grecian style into country villas and private dwelling-houses in cities. In rural residences it is not only necessary to avoid introducing the external characteristics of a town-house, but those of the internal arrangements also. Thus, where the extent of the plan is unlimited, the drawing and sitting-rooms should range on the ground floor, and none but sleeping-rooms should be above. The various domestic offices may form wings to the country villa or may be detached, and a communication obtained by a colonnade or piazza, as circumstances may render it necessary. The stables, coach-houses, drying-yard, and all such requisite appendages should be at the back of the house, or so disposed as not to intrude; nothing that can be deemed derogatory to the general character of a gentleman's residence should be seen from the windows of an elegant Grecian villa.—(C.)

good authority, is, perhaps, the very worst. The air of the first is warm, mild, and muggy, and that of the second is pure, keen, and piercing. Nice is the great rendezvous of English invalids, and certainly it is a most lovely place; inclosed on the land side by a semicircle of hills and mountains, it sweeps round the base of a steep rocky mount which stands in the midst of it on the very verge of the sea, commanding a beautiful and extensive view of land and water. "It is no wonder that the wealthy Romans should have eagerly contended for every inch of ground on this delightful Hygeian shore. There is something in the sight of a boundless, waveless, and tideless ocean, which, independently of the pure and refreshing air, conduces to tranquillity of mind, and calms the effervescence of the passions. The depressive atmosphere of the Campagna and Pontine marshes is here exchanged for the refreshing sea-breeze that skims the Mediterranean by day and the bracing land-wind that descends from the Apennines at night. The scenery is highly romantic.

Roman Mansion.—When the Romans settled in England their architecture was here of the most splendid and gorgeous character, and the ancient city of Rome at this time stood on seven hills, while their villas in England were seated on the sides and mid-heights of eminences.* Modern Rome now occupies a plain, and the Pinsian hills and the Alban mount are become what Hampstead and Highgate are to London. A gentle sloping declivity, facing the south and near a river, is still the most eligible and cheerful spot for a country mansion, particularly in the Roman or Romo-Italian style; such is the site,

> "And sunny mount of beauteous Castle hill,†
> Health's cheerful haunts, and the selected walks
> Of Fortescue's leisure."—Pomfret.

What the Devonshire Poet said of Mount Edgecombe applies here,

> "The raptured eye now wanders round
> The circling stretch of distant ground,
> Where fading mountains crown the scene,
> With many a fertile vale between."
> Rev. J. Bidlake, A.B.

On this lovely spot the most vivid excitement of feeling is experienced, not only from the unchecked liberty of vision into the distance, but the grandeur of the promontory at the back, clothed with shrubs, and crested with a ruined castle of bye-gone days; undulating hills with sombre shadows sleeping in their recesses, the beautiful lengthening outlines which flow about their surfaces, constantly changing, attract the attention. This is not only the best situation for a mansion, but also for the introduction of ornamental decorative accessories, as well as in the gardens or in the shrubberies in accordance with the buildings, or with a bold and extensive scenery. A mansion thus placed excites in the beholder the most pleasing ideas of health and comfort, and of all those various enjoyments which render life delightful; every particular object which is gratifying to the eye of taste will be seen to advantage, and from the surrounding country the effect of the whole will be impressive and lasting.

Such a situation by nature possesses great advantages, and the application of the decorative parts of landscape-gardening should be in conformity with the beauty and grandeur of the surrounding scenery: one offensive object, one deviation from the true character of this enchanting spot in any accessory, would destroy that general unity of effect which should be attentively studied and carefully preserved. That the precepts here inculcated, which are so important in the choice of a situation for a beautiful, cheerful, and healthful residence, may be clearly understood, Plate LV., which is an illustration, is introduced, showing the four principal exemplars of rural mansions, seated in the situations, and accompanied by their appropriate scenery alluded to in this Essay. In reference to these scenic views, which are here brought into one plate, it

* The situation which was always chosen by the Romans, who invaded England under Julius Cæsar, (A.C. 55, and continued till A.D. 449,) where they could obtain it, was the gentle declivity of an hill near a river, and facing the meridian sun.—(Henry's History of Great Britain vol. ii. p. 480.)

† The seat of Earl Fortescue in Devonshire.

is presumed they will determine the correctness of what has been advanced, and evidently on inspection show which is the most eligible and desired situation, better than if a volume had been written on the subject. In addition to the objection that has been made against the extremes of both hill and dale, the difference produced on the mind of the spectator by the effect of either, separately considered, is sufficient to induce a determination in favour of the intermediate situation. Here taste, elegance, and a just appropriation of the parts, present an essential subject, and a perfect picture. The gentle declivity in the front, stretching down to a majestic river, the ornamental wooded upland in the rear, the irregularity and undulation of the surface around, all conspire to fill the mind with sensations of pleasure and paradistical delight.*

Climate.—Of all situations for a country mansion the side of a hill facing the south-east is the most to be preferred for salubrity, cheerfulness, and health, and all extremes are objectionable. Now, our atmosphere consists of different degrees of density as it ascends upwards; in the valleys it is heavy, and presses down with great force on the human frame, as we ascend up the mountain it becomes lighter, and if we were to ascend the highest mountains, "above the storm's career," such as Mont Blanc and the Andes, we should arive to that light medium of the atmosphere as to become languid and unable to stand, and at last to cause the blood to issue from the pores, in consequence of having lost that external pressure of air around us, necessary to brace and resist the pressure within, and to keep up the equilibrium. Speaking of the Apennines, Lady Morgan says, that the ascents and descents among these devoted chains of mountains produce much mental excitement, "bracing alike the nerves and the intellect." They are less majestic than the Alps, as well as less terrific; but they are more luxuriant, perhaps more beautiful; they rise not so high as to be uninhabited, and the snows are not so lasting as to prevent partial cultivation. Here, says the fair authoress, may be seen among those mountains, fine figures, healthful athletic forms, and angelic countenances, which are banished from the plains by the deleterious effects of malaria arising from alluvial soil.

ON THE VARIETY OF CLIMATE IN GREAT BRITAIN, AND THE APPROPRIATE PLACES OF RESIDENCE FOR INVALIDS.

"Of all the climates of Europe, England seems to be the most fitted for the activity of the mind, and the least suited to repose. The alterations of a climate so various and rapid continually awaken new sensations, and the changes in the sky from dryness to moisture, from the blue ethereal to cloudiness and fogs, seem to keep the nervous system in a constant state of excitement. In the changeful and tumultuous atmosphere of England to be tranquil is a labour, and employment is necessary to ward off the attacks of ennui."—Sir Humphrey Davy.

The climate of Great Britain, relatively to others in the same latitude, is "temperate, humid, and variable." The moderation of its temperature and humidity is supposed to be owing to our being surrounded by the sea, which, by being less affected by the sun than the earth, imbibes less heat in summer, and from its fluidity is less easily cooled in winter. As the sea on our coast never freezes, its temperature must always be above thirty-three or thirty-four degrees, and hence when air from the polar region at a much lower temperature passes over it, that air must be in some degree heated by the radiation of the water; and on the other hand, in summer, the warm currents of air from the south necessarily give out part of their

* The modern Roman style of architecture, which is well adapted for country rural residences, was composed by the Italians, and differs from the ancient Romans, partly in the introduction of arches, before unknown, and by a still greater license in regard to the arrangement and placing of columns in tiers above each other, thus aiming to produce painter-like effects. The great object of the modern Roman architects seems also to be to produce harmony by means of various contrasts of form, and of light and shade on every part of the edifice, so that the parts might be defined. Enough of Roman details have been exhibited in this country by Inigo Jones and Sir Christopher Wren, both in the metropolis and country mansions to keep up the style, and form studies of Roman architecture. However, when this is done, the next grand object should be to please the eye of a judge of general composition, rather than that of a servile follower of the canon of the five orders. Finally, this style is again becoming highly approved even to the exclusion of the chaste Grecian, it being the most expressive and suitable for domestic purposes, as well as more economical for the general mass of society, and best adapted for English Scenery.—(Author.)

heat in passing over a surface so much lower in temperature. The variable nature of our climate is further owing to the unequal breadths of watery surface which surround us; on one side a channel of a few leagues in breadth, on the other the Atlantic ocean. The British climate also varies in different counties and districts; one is dry, as the east, and another moist, as the west. In the northern extremity it is dry, cold, and windy, while in the southern it is warm and moist. Again, in the moist districts, some parts are really dry, occasioned by hills at some distance warding off the clouds from the Atlantic, and in dry districts some parts are also moist from the influence of high hills or mountains, which being near, attract and condense those clouds that are charged with watery vapour.*

There is a vast difference between the variability of climate in England and in Italy. In England the changes (barometrical, thermometrical, and hygrometrical) are very frequent, but they are also very limited in their range. In Italy it is just the reverse; the transitions are not very frequent, but when they do occur their range is often most extensive. Now the frequency of alterations in England, and the moderate range of those alterations, are the very circumstances which render them comparatively innoxious. We have cloud and sunshine, heat and cold, winds and calms, drought and rains, twenty times in one day, but the British constitution becomes inured to them, and safely so from the rapidity of their recurrence, and the limitation of their ránge. The fogs of England and its cloudy skies furnish constant themes for querulous complaints, but they would be rich treats in Italy, where the air is at one time so still as to cause languor and a depression of spirits, (not unfrequently felt at the approach of a storm) and almost to suspend the animal functions, while in a moment so tempestuous as to spread death in its tract by a deluge of rain and torrents of liquid fire following each other in quick succession down on her vales, with a sun at the time nearly vertical in the summer seasons, and visited in the winter by chilling gusts of tromontane hurricanes.† As rains fall in Italy more seldom than in England, they make up for this infrequency, precipitating themselves in cataracts from mountain torrents, which overflow their banks, flood the plains, and penetrate every inch of ground with humidity. The deluge over, a powerful sun bursts forth, and rapidly exhales into the air, not only the aqueous vapour from the soil, but the miasma generated by the decomposition of all the vegetable and animal substances which the rains have put in motion, the floods carried down from the mountains, and the gutters swept out of the streets. If these exhalations rise into the air, though perfumed with the aroma of ten thousand odoriferous shrubs, breathing their balmy influence over the face of a smiling landscape, still they are not the less, but the more dangerous on that account.

Now the British isles offer a greater variety of climate, without any violent extremes of heat or cold, moisture or drought, than any other country in the world. The southern coast of England affords many salubrious

* There are other causes which tend constantly to produce changes in the atmosphere; this we have already noticed in a former part of the work. The principal changes in the atmosphere are those which affect its heat, its weight, and its moisture. The changes of heat are those of which we are the most sensible, but our own feelings give us a very imperfect measure of heat and of cold. A single experiment will show this: suppose a person puts one of his hands into a vessel of very cold water, and the other hand at the same time into one of water as hot as he can bear it, and after suffering them to remain in that state for a few minutes takes them out, and then puts both hands into water moderately warm. Now this lukewarm water will convey to the hand which has been plunged into very cold water a sensation of warmth, but it will feel cold to the hand which has been in the hot water. As long, therefore, as we trust merely to our own sensations of heat and cold, we can have but a very uncertain estimate even of the sensible heat and cold of the air. Much will also depend upon the state of our blood at the time; this can only be ascertained by the thermometer. The influence of climate is wonderful in every zone, and not only changes the complexion from light to dark, but also the features; and indeed the whole organization of man, as well as animals and plants, undergoes a change.—(A. B.)

† The thermometer is no index or criterion to our feelings at Naples in the summer, when under the influence of the *sirocco* or south-east blast, fraught with all the plagues of the desert of Africa, nor in the winter when the *tromontane*, or north-east winds depress the mercury as much as in Caledonia. The former appears to suspend, exhaust, or paralyze the nervous energy of the body, and the sensorial vigour of the mind, both of which fall prostrate beneath the flood of enervating steam engendered by the aerial current sweeping over burning sands and evaporating seas. The latter, or tromantane, in Switzerland and in Italy, comes down from the Alps and Apennines with such a voracious appetite for caloric, that it sucks the vital heat from every pore, and shrivels up the surface of the body, impels the tide of the circulation with great violence upon the internal organs, and endangers the lungs, or whatever other structure happens to be weakest in the living machine.—(Dr. J. Johnson.)

retreats for the abode of invalids during winter and spring. Such as Hastings in Sussex, the Isle of Wight in Hampshire, and Dawlish, and Torquay, in Devonshire.* This line of coast is open to the refreshing southern breeze, and protected by gentle eminences from the northern blast. The drives and rides here are among the most lovely in the world. The rock-creeks are a little wilderness of beauty; sparkling waters, secluded bridle-paths, sunny and sheltered hill-sides, and fine mingling of flowers, rock, hill, and valley, and sylvan retreats of every variety of beauty are seen in almost every meandering direction.†

The interior of England presents numerous salutary localities beyond all other countries for the accommodation and recovery of invalids of every kind. Those who seek a bracing air and dry soil, and pure medicinal waters, may find them at Tunbridge Wells in Kent, Malvern in Gloucestershire, and many other places. The gouty will find shelter and solace at Bath in Somersetshire. Cheltenham in Gloucestershire, and Leamington in Warwickshire, will both purge away by their powerful springs the bile and melancholy of India and the Antilles; while Harrogate in Yorkshire, near Knaresborough, will be found to work as many miracles on the skin as did the pool of Bethesda in days of yore. (See John, c. v.)

If health, or to remove hypochondriacism and stimulate the digestive organs be the object, and *terra firma* preferred before Neptune's dominions, the British traveller, whether valetudinary or not, can command the greatest variety of air and scenery, "with the best roads, the best horses, the best carriages, and the best inns in the world." The mountains of Scotland, it is true, are not so lofty as those of Switzerland, but they are more accessible, and the air equally salubrious. The Highland glens and valleys are not quite on a par with Grindenwalde, Lauterburen, and Meyrengen, but they are not blotted and deformed by goitre and cretinism. Moreover, they have that of which the Helvetian vales and cliffs are remarkably destitute; a romantic tale or historical event, or a legendary tradition connected with every step we take, and capable of keeping the memory and the imagination in a constant state of excitement, similar to that which we experience on the classic soil of Italy, Sparta, or the plains of Marathon in Greece.

If Windemere in Westmoreland, Killarney in Ireland, and Loch Lomond in Scotland, are not so beautiful as lakes Leman, Como, and Arno in Italy; they are very little inferior in that respect, and their banks are the seats of health and hilarity, not the scenes of loathsome pellagra, nor the sources of deadly malaria. If Caledonia is less majestic in scenery than Switzerland or the Tyrol, celebrated as the birth-place of that skilful archer William Tell, it is equally impressive on the eye of the spectator, and equally salubrious for the traveller. The mountains and vales of *Cambria* must be allowed to surpass the Apennines both in beauty and salubrity, unscorched by the enervating *sirocco*, or unchilled by the icy *framantare*. They are, on the contrary, kept in perpetual verdure as well as purity, by the mild and salubrious breezes of the Atlantic, carrying health and fertility on their wings, which they scatter over fair Britain.

* I believe, (says Mr. Mathews, writing from Italy,) that after all Devonshire is the best place for an invalid during the winter season. The sea-breeze in Devonshire is mild and soft, here it is frequently keen and piercing. In Devonshire, too, all the comforts of the country are directed against cold; here all the precautions are the other way; the houses are built to exclude, as much as possible, the rays of the sun, and are now as damp and cold as rain and frost can make them. And then what a difference between the warm carpet, the snug elbow-chair, and the blazing coal fire of an English winter evening, compared with the stone staircases, marble floors, and shivering casements of an Italian house!—(Diary of an Invalid.)

† A person with weak lungs would do well to select a low and sheltered rather, than a high place for their residence, and only venture forth in fine and still weather. Invalids should beware of four things: exposure to a hot sun, to night air, to fatigue in sight-seeing, and to improper regimen; either of these will frequently dispose the constitution to the impression of a malarious emanation, which under other circumstances would make no impression at all.—(Dr. Johnson on Change of Air.)

GLOSSARY

OF

ARCHITECTURAL TERMS.

A.

ACROTERIUM, a pedestal on the apex of a pediment for a statue.

AMPHITHEATRE, a theatre in which the spectators surrounded a central arena or pit, where the exhibition takes place.

ANGLO-GRECIAN, the architecture of the Greeks accommodated to English edifices.

ANGLO-ITALIAN, the architecture of the Italians adapted to English edifices.

ANTE-CHAMBER, a retiring chamber.

ANTE-ROOM, a waiting-room, within a house, situated near the entrance-hall.

ARABESQUE, a term strictly applied to the fanciful ornaments which originated with the Arabian architects.

ARABIAN ARCHITECTURE, that architecture from which the various styles are produced that now prevail in the Mahomedan structures.

ARCADE, a piazza formed by a row of piers and arches attached to one or more buildings.

ARCHITRAVE, a combination of ornamental mouldings round a door or window.

AREOPAGUS, an Athenian court of justice.

ATRIUM, the judgment-hall in ancient Greek and Roman houses immediately within the court.

ATTIC, a low crowning story above the main cornice of the front of a house.

ATTIC-FLOOR, the story between the second floor and garret.

AWNING, a Chinese colonnade, attached to the front of a house on the ground-story, as a shady tent or alcove.

B.

BAKEHOUSE, a back room on the ground-story with an oven.

BALCONY, a stone platform in front of a house projecting from the first-floor, and constructed with a balustrade breast-work.

BALUSTRADE, a breast-wall, composed of square pedestals and turned stone balusters on the top of a building, edge of a terrace, or the sides of a bridge.

BARBICAN, the outworks belonging to a castle which protect the drawbridge-gate or portcullis.

BARGE-BOARD, a distinguished ornament in the half-wooden houses of the 14th and 16th centuries. It was often richly carved, and extended up the meeting-lines of the gables, covering the projecting end timbers of the roof.

BARTIZAN, small pendant parapet-turrets at the angles of castellated mansions.

BASEMENT FLOOR, the floor underground or below the ground-floor.

BATTLEMENT, the indented or pierced parapet on the top of a castellated building.

BAY-WINDOW, a polygonal window, generally hexagonal or octagonal; they are sometimes carried up to the parapet of the building.

BELVEDERE, an Italian turret-chamber above the roof for viewing the surrounding landscape.

BLOCKING-COURSE, a plain course of stone, forming a low parapet above the cornice of a building.

BOSS, a carved ornament clasping the intersection of the groined ribs in a Tudor ceiling.

BOW-WINDOW, a circular projecting window, either semicircular or segmental; sometimes carried to the height of the building.

BOUDOIR, a lady's dressing-room (derived from the French).

BREAKFAST-PARLOUR, a morning parlour for taking breakfast in, situated generally at the east.

BREW-HOUSE, a house for brewing.

BULL'S-EYE, a round window.

BURMESE ARCHITECTURE, a style composed from the Chinese, on the borders of whose territory those people are situated.

BUTTRESS, a projecting pier, to strengthen the external angles of walls in castellated and Tudor architecture.

C.

CABIN, an Irish cottage without a fireplace.

CAMPANILE, a bell-turret or watch-tower.

CANOPY, an ornamental cap formed as a protection over the head of niches.

CANTILIVER, a console truss-bracket under a balcony.

CARYATIDES, statuary figures substituted in place of columns.

CASEMENTS, windows which are hinged on the sides and open up the centre.

CASINO, a small Roman summer residence; a pleasure-house.

CASSOON, a sunk panel or coffer in the Greek and Roman ceilings.

CASTLE, a Norman embattled baronial mansion.

CENOTAPH, an empty honorary monumental tomb.

CHATEAU, a French country-seat.

CHEVRON, a Norman zig-zag ornament.

CHIMNEY, a fireplace in a room.

CHIMNEY-SHAFT, that part of the chimney which rises above the roof.

CHINESE ARCHITECTURE, a close resemblance of the Tartar tent, which people are situated in their rear.
CIRCUS, a theatre with a circular arena for equestrian performances, or a curved row of buildings around a circular space, with an ingress and egress.
COLONNADE, a row of columns, sometimes consisting of two, between which is a passage.
COLUMN, one of the cylindrical or round pillars of the classic orders of Greece or Rome; that part between the base and capital is called the shaft.
CONCRETE, a foundation formed of large and small pebble-stones grouted between with hot-lime and sand.
CONSERVATORY, a house with much glass and attached to a dwelling-house for preserving exotic plants.
CORNICE, the upper of the three parts which form the entablature of the Greek and Roman orders, used also singly along the tops of buildings, and round the ceilings of rooms.
CORRIDOR, a passage open on the sides, but covered above.
CORTILE, the inner court of a palace, surrounded with a colonnade, supporting upper stories of the building.
COTTAGE ORNEE, an ornamental cottage.
CRENELATED, a battlemented parapet.
CROCKET, foliated ornaments running up the angles of pinnacles in Tudor architecture.
CURB-ROOF, a French roof which has on it externally a projecting angle above the garret windows.
CUPOLA, a lantern-light on the crown of a dome; a turret.

D.

DAIRY, a house in which is kept milk, cream, and butter.
DAIS, a raised platform at the end of ancient halls, where the lord and his dependants dined.
DAYS OF A WINDOW, the separate divisions of casements in a window.
DEAMBULATORY, an arcade or sheltered walk for exercise.
DENTILE, a series of tooth-like ornaments, common to the Ionic and Corinthian cornices.
DINING-ROOM, room for dining in.
DISCHARGING-ARCHES, arches reversed, turned under the lower windows of a building and between the piers, to produce equal settlement.
DOG-KENNEL, a house for hounds.
DOG-LEG STAIRCASE, a staircase which has no well-hole, and with newels and close string-board.
DOME, a hemisphere roof over a staircase or on a single building; a Roman mansion.
DORMER-WINDOW, a perpendicular window on an inclined roof for the garret.
DORMITORY, a sleeping-room.
DOWEL-FLOOR, a floor where the boards are formed of narrow battens and dowelled together.
DOWRY-HOUSE, a house for a dowager.
DRESSING-ROOM, a small room adjoining the bedroom.
DRIPSTONE, an inclined stone which terminates the top of a buttress.

E.

EAVES, the lower edges of a slated roof, at the gutter part.
EGYPTIAN ARCHITECTURE, a massy, heavy, and ponderous style, consisting of columns and entablature, with sculptured frieze and walls, the latter of which on every side incline inwards.
ELIZABETHAN ARCHITECTURE, the simplest and last of the Tudor modifications of that style.
EMBRASURE, the opening in a battlemented parapet.
ENGLISH BOND, in brickwork is that where one course of headers and then another of stretchers are alternately adopted.
ENTABLATURE, a Grecian or Roman cornice, consisting of a combination of mouldings over columns, and divided into architrave, frieze, and cornice.

F.

FACADE, the front of a supposed building facing a public street or the garden side, highly decorated.
FESTOON, a festival ornament composed of flowers and fruits, suspended at the ends, and forming a pendant curve in the middle.
FINALE, a foliated ornament on the top of a pinnacle.
FIRST-FLOOR, the floor immediately above the ground-floor.
FLEMISH BOND, in brickwork is that bond where there is alternately a stretcher and a header.
FOLDING-FLOOR, a floor where two boards are nailed down to the joist, and the intermediate one raised on their edge and forced down.
FOOTING-OF-WALLS, those walls where a series of courses of brickwork is projected on each side at the foundation.
FREESTONE, any stone that can be worked by the saw and chisel.
FRENCH FLOOR, a floor formed diagonalwise and in squares.
FRENCH CASEMENTS, sashes which open in the middle and are hung on each side; when lofty they have frequently a transome-rail below the top square, like a crucifix.
FRETT, an ornament consisting of one or more sunk grooves at equal distances, finishing at the top and bottom ends, like the wards of a key.
FRIEZE, the middle member of an entablature.

G.

GABLE, the angle-pointed masonry above the end of a Tudor building, answering to the pediment of the Greek temple.
GALLERY, an oblong room for pictures or statues.
GARGOYLES, grotesque water-spout heads in Tudor architecture at the eaves of the roof.
GARRET, a room in the roof.
GATE-HOUSE, a house with an arched gateway, belonging to the Lancastrian and early Tudor mansions.
GAZEBOW, an Indian observatory on the top of a house, answering to a belvidere.
GELAZIE, an Eastern window-blind, a substitute for a sash.
GEOMETRICAL STAIRS, stairs which have a circular well-hole, a continued string, and without newels.
GRÆCO-ROMAN ARCHITECTURE; this is the proper title for all edifices in which the columns and entablatures of Greece are employed in connexion with the arches, domes, and cupolas of Rome.
GRANGE, a home-farm belonging to the lord of the manor, a residence of his bailiff.
GRECIAN ARCHITECTURE, a term strictly meaning that species of design composed mainly of horizontal masses and lines, which derived its decorative character from the use and application of the primitive Dorian, Ionic, and Corinthian orders as perfected by the Greeks.
GROINS, cross arches, some equal and others of unequal pitch, formed by the intersection of two vaulted ceilings.
GROUND-FLOOR, the floor on the ground.
GROUTED, a wall which has been carried up with bricks and mortar, and at every three feet filled in with hot-lime and sand made to a fluid consistency.
GUILD-HALL, a corporate building for the meeting of the mayor, corporation, and the administrators of justice.

H.

HALL, an ancient mansion-house.
HALL, the first open space or room on entering a mansion: a dining-room for servants. The halls in the ancient Plantagenet and Tudor mansions had sumptuous carved roofs.
HIPPED ROOF, a roof is said to be hipped when the ends present a sloping surface instead of a gable.
HIPPODROME, a Roman building for exercising horses; the building was oblong with semicircular ends.
HUNTING-BOX, an ornamental house on a nobleman's domain, in which hunters take refreshment.

I.

INDIAN ARCHITECTURE, the Hindoo and Mahomedan styles, which are very dissimilar.

INTERCOLUMNIATION, the distances so called between one column and another.
ITALIAN ARCHITECTURE, a term used to distinguish the Palladian modification of the antique, into which was first introduced the archivault and dome.

K.

KEEP, the large dungeon-tower in the centre of Norman castles, which rises above the main edifice.
KITCHEN, a room for dressing victuals in; during the middle period, these rooms were spacious and noble. The kitchen at Glastonbury, belonging to the ruined abbey there, is octangular, like some of our chapter-houses.

L.

LABEL-MOULDING, a drip or weather moulding over a Tudor window on the exterior of a dwelling-house.
LACUNARIA CEILING, a ceiling with sunk panels.
LANTERN-LIGHT, an upright skylight with glass on the sides, and a flat ceiling on the top.
LARDER, a room for keeping victuals.
LAUNDRY, a room for drying and ironing clothes.
LEAN-TO-ROOF, open house or shed-roof, whose rafters lean against another building.
LIBRARY, a room for books, situated at the east end of a house.
LOBBY, an anti-hall leading to one or more rooms.
LOGGIE, an inner open gallery or colonnade round a building, with a court in the middle.
LOOP-HOLES, vertical slips of windows in Norman staircase towers.
LOUVRE, a turret over a kitchen, or ancient banqueting-room, as that on the roof of Westminster-hall. They are sometimes formed octagonal, roofed on the top, and have luffer-boards on the different sides, which admit light between and guard off the rain-water.

M.

MACHICOLATIONS, a corbel cornice to a castle, with vertical apertures for pouring down melted lead and missiles on the heads of the assailants.
MAHOMEDAN ARCHITECTURE, that belonging to the Mahomedan structures, composed of arabesque forms of pointed arches and turban domes.
MANOR-HOUSE, a house in which resides the lord of the manor.
MANSION, an ancient and a noble country-house of great extent and design.
MANSION-HOUSE, a house in which the mayor or chief corporate magistrate resides.
MAUSOLEUM, a splendid sepulchre erected by the wife of Mausoleus over the relics of her husband.
MEZZANINE FLOOR, a dwarf floor between the ground and first floors, a place for servants; a French kitchen. Entresol.
MOORISH ARCHITECTURE, that of the Moors at Susa and Barbary in Africa; a mixed variety of the horse-shoe arch, the Norman arch, the Mahomedan, the pointed, cusped, and the ornaments of Arabia and Damascus.
MOSAIC PAVEMENT, formed of inlaid stones of various colours, figures, and scroll-work.
MULLIONS, the vertical stone, or wood moulded large division-bars, dividing the width of the Tudor windows into various compartments.
MUNICIPAL ARCHITECTURE, corporate public buildings.

N.

NICHES, semicircular recesses in the front of a house, or entrance-hall for placing statues of celebrated persons in.
NORMAN ARCHITECTURE, military castles.

O.

OBELISK, a monolithic pillar of Egyptian origin.
OILET-HOLES, cross slip windows in staircase towers of castles, for discharging arrows.
OPEN-NEWEL-STAIRCASE, a staircase with open string-board, newels, and a well-hole.
ORIEL-WINDOW, a small semicircular window projecting from an upper story, and resting on clustered mouldings. Their origin is eastern, and in the monastic edifices, those recesses were appropriated to places of prayer for the abbot.

P.

PALISADE, upright railing in front of a house as a fence.
PALLADIAN ARCHITECTURE, Italian architecture, composed of the Roman, Grecian, and Byzantine styles; such is the architecture in the Regent's Park, London.
PANTRY, a butler's room for keeping plate.
PARAPET, the top of the wall of a house, inside of which is a gutter. From the French par à pied.
PARLOUR, a small room set apart to receive visitors, a room for conversation, from the French *parler*.
PAVILION, an oriental palace or princely summer residence.
PAVILION-ROOF, a roof heaped in on every side.
PEDIMENT, the triangular masonry above the end of the Greek and Roman temples, formed by two inclined cornices rising from a horizontal one.
PENT-HOUSE, a shed with a lean-to-roof.
PERSIAN ARCHITECTURE, a compound of the Mahomedan style, and with fig-leaf arches and bulbous domes.
PIAZZA, generally understood of an arcade or colonnade; though, properly speaking, it is the square which the colonnade surrounds.
PIER, a square pillar; the substance between one window and another.
PINNACLE, a small spire employed in the Tudor architecture to crown the tops of gables, angles of staircase-towers, porches, and the pediments of dormer windows.
PORCH, a projecting entrance inclosed at the two sides, and open with an arch in front.
PORTAL, an arched gateway; the ceiling overhead.
PORTCULLIS, a barbed gate, drawn up and down in grooves, in the castellated and early Tudor gatehouses.
PORTICO, a projecting entrance formed with pillars supporting an entablature, and pediment roof above.
PYRAMID, a monumental building sloping on all four sides, and meeting in a point above.

Q.

QUADRANGULAR HOUSES, ancient houses built round a court which they inclosed.
QUATREFOIL, a sculptural opening, the outline of which resembles the four leaves of a cruciform flower; Trefoil, resembling a flower of three; Cinquefoil, of five flowers.

R.

REFECTORY, a dining-hall belonging to monasteries.
ROMAN ARCHITECTURE, a term strictly applying to that extensive variety of the art which involved the construction of cupolas, vaults, and arches, the surface of which were decorated with forms copied from the Greek temples.
ROTUNDA, a circular building both within and without, like the Pantheon at Rome, built in the time of Augustus.
RUSTIC BUILDING, a building composed of rough stones of any kind.
RUSTIC COTTAGE, a cottage built with rough stones and flints, and unbarked pollard-trees for pillars; casement windows, picturesque roofs, and diagonal chimney-shafts.
RUSTIC WORK, aris or square grooves, both horizontal and vertical, dividing the stones in the elevation of a building, and still more applicable when the stones are vermiculated to imitate rock-work.

S.

SALOON, a superb room of two stories high, sometimes placed in the middle of the house, at other times at the end of a gallery; it is a room of state for receiving noble visitors. In

palaces it is the place for giving audience to plenipotentiaries: the ornaments are here at all times profusely displayed.

SARACENIC ARCHITECTURE, Arabian architecture.

SCAGLIOLA, a mode of imitating both the constituent parts and colours of the various marbles, it was invented by a monk at Valambrossa.

SCREEN, a row of columns with their continued entablature, erected along on the top of a dwarf-wall, between which and the dwelling-house is a court, generally attached to palaces.

SHINGLES, wood-tiles.

SHOOTING-BOX, a lodge on a nobleman's grounds, in which guns and ammunition are kept, and in which shooting-parties take refreshment.

SOANEAN ARCHITECTURE, the Anglo-Grecian style.

STRAIGHT-JOINT FLOOR, a floor where each board is nailed on one side and one edge, each board being laid separate.

STRING-COURSE, a projecting band in the front, ends, and sides of a house parting the stories.

STUD-WORK, wood-framed walls. These were formed in various devices during the Lancastrian and Tudor periods.

SWISS ARCHITECTURE, wooden buildings with great pent-house roofs, and walls formed of framed wood-work cased with feather-edge boards, some of which are curiously carved; the whole superstructure resting on a stone plateau or terrace, about five feet high.

T.

TAMBOUR, the cylindrical part rising above the roof of a noble edifice, on which the dome rests.

TERMINAL, a pedestal for a statue, which diminishes downwards; the large part being at top.

TERRACE, a raised walk in front of a house, laid with gravel, and inclosed with a dwarf balustrade wall.

TESSELATED PAVEMENT, pavement formed with small bits of white stones laid in strong cement, which formed the Roman floors.

THEATRE, a place for dramatic or other performances.

TRANSOM, in the Tudor architecture is a large stone or deal horizontal bar across the various divisions of the bay-windows.

TRELLIS-WORK, formed by laths or slips of deal into a chequered pattern.

TRUNCATED-ROOF, a roof sloping on all sides, with a flat top.

TUDOR ARCHITECTURE, the architecture which prevailed during the reign of the Tudors, commencing with Henry VII. in his chapel at Westminster, and terminating at the close of the reign of Elizabeth. It went through various picturesque modifications.

TURKISH ARCHITECTURE, that of the Mahomedan, with og-pointed arches, and turban domes.

TURNPIKE-STAIRS, those stairs in towers which wind round a newel; they were so called in the time of the Tudors.

TYMPANUM, the triangular part of masonry within the boundary of the cornice of a pediment.

V.

VESTIBULE, an ante-hall, lobby, or inner porch.

VILLA, a Roman country-seat, some of which were most splendid and extensive.

W.

WATER-TABLE, the crowning dripstone on a buttress.

WATTLE-WORK, a kind of basket-work; a mode adopted by the Nomadians in the early ages for constructing their houses, which they covered over with dried grass and leaves.

WITHDRAWING-ROOM, commonly called drawing-room, handsome and elegant room to which the family in the best houses retire after dinner.

LANDSCAPE GARDENING.

CONTAINING THE

ART OF LAYING OUT AND EMBELLISHING THE GROUNDS

CONNECTED WITH A

COUNTRY MANSION.

PREFATORY HISTORY.

LANDSCAPE-GARDENING has very properly been termed an imitative art; its object being to arrange, to form into symmetry, and to embellish particular scenes in accordance with the great original Nature, and the closer such adherence is, the more pleasing and satisfactory will be the effect. Very early we read in the works of Pliny of the formal and stiff kind of gardening which then prevailed amongst the Romans, such as geometrical figures, clipped hedges, and tortured yews in the topary style of art.* Propertius has also very early recorded the introduction of statues and jets d'eaux; and Pliny, the younger, has given us an account of his villa at Laurentinum, (transcribed into another part of this work,) which was situated some leagues from Rome. There he describes a variety of attached buildings, and the garden as being surrounded with hedges of box, and says, this villa was much admired for its extensive prospects.

The Romans were the first who introduced landscape-gardening into England, as we perceive among the remains of their Anglo-Roman villas; but after they had left this country, landscape-gardening was little attended to beyond the abbey grounds† till nearly the middle of the sixteenth century, during the reign of Henry VIII., when Cardinal Wolsey had Hampton Court laid out to embellish the princely mansion he had there erected. In the reign of Queen Elizabeth Sir Francis Bacon caused his garden and grounds at Verulam House, near St. Albans in Hertfordshire, to be laid out and decorated upon the principle he has laid down in his Essay. And afterwards, King Charles II. during his reign sent to France for Le Notre, an eminent landscape-gardener, who laid out and planted the Parks at Greenwich, and St. James's in London. After this, when George II. came to the throne, Queen Caroline engaged Bridgeman, a celebrated English gardener, to extend and remodel Kensington Gardens.‡ He also formed in those gardens what is called the Serpentine River, by uniting a number of detached ponds.§

We next arrive at an important epoch in landscape-gardening, when the ancient method was to receive a final shock, and an improved system to be adopted. Thus, at a period in the same reign of George II., Stowe House in Buckinghamshire, the seat of Lord Cobham, now Duke of Buckingham, was to be considerably enlarged; rendered more magnificent, and the old geometrical gardens, which had been so long famous, and set the fashionable example, were also to undergo a change. Kent, reputed to be the father of modernized gardening, was appointed, and to him the work was entrusted.‖ It was reserved for him, says Barrington, now to realize the beautiful descrip-

* I should advise every lover of gardening who may take a journey to Paris, to visit the Jardin des Plantes, founded by Jean de la Brosse, in the reign of Louis XIII. Here he may see every kind of fence, hedge, ditch, and haw-haw, also the different methods of training espalier trees, and evergreens of every description that has been practised on the globe. He should also visit the elegant gardens at Versailles, with which I was much delighted.—(Author.)

† Those ornamental plantations were always avenues and groves; the former were for deambulatories, the latter for rookeries.—(B.)

‡ Bridgeman was the fashionable gardener at this period, and practised a compound style, that of radiating the plantations of trees, separated by opening glades, and joined with the ancient avenue. Horace Walpole supposes Bridgeman had been stimulated to this altered system by Pope, who wrote a paper in the Guardian, No. 173, applauding it, in which Pope says, "He banished verdant sculpture and introduced masses of forest scenery," alluding to the gardens of Richmond and Kew, which he had before laid out and planted, though this, says Walpole, was not till other innovators on the old style had broken loose from rigid symmetry. (Walpole's Anecdotes.) It is worth a passing notice to state, that the ground in front of Powderham Castle in Devonshire, the seat of the Earl of Devon, is laid out precisely upon the panopticon plan adopted at Kensington Gardens.—(Author.)

§ In this he was not original; Lord Bathurst before him having deviated from straight lines as applied to decorative pieces of water, and following the natural course of a valley. In widening a brook at Ryskins near Colnbrook, which Lord Stafford, supposing economy to have been the motive, inquired, "what would have been the additional expense to have made the banks of this piece of water straight?"—(Daine's Barrington.)

‖ William Kent was born in Yorkshire, in 1685, and bred a coach-painter, which not liking, he soon after, (1719,) went to London, where he discovered a genius for historical painting, and was there patronized by Lord Burlington, a great architect. He left England and went with his lordship to Italy, but returned with him, and lived at Burlington House till he died, in 1748, and was buried in his lordship's vault in Chiswick church-yard, near the celebrated Hogarth. On his return from Italy he was chiefly employed to paint historical subjects on walls and ceilings, and the hall at Stowe is from his pencil. He was also employed as an architect, in which he displayed much knowledge; Holkham Hall, in Norfolk, the seat of Lord Leicester, was designed by him, a most magnificent pile, on which he much prided himself. Lastly, he was employed as a landscape-gardener, but it is not known where he first exercised his

tion of the Poets.* Kent saw the incongruity of artificial design when at variance with nature. The straight walk, the clipped hedge, the tortured yew, sunk beneath the superior chastity of his taste. He made as much improvement as an innovator could do, who had a prevailing bad taste to contend with, but for which he was peculiarly gifted by being an historical painter. According to Lord Walpole, he at once leaped over all boundaries, and the first stroke was the destruction of circumscribing walls—the same has lately been pursued at Kensington Gardens—and the introduction of the haw-haw or sunk fence in its stead; next, that of blending and harmonizing the lawn with the park followed, for he at once saw that all nature was a garden, only bounded by lofty hills or the distant horizon, and he was painter enough to feel the charms of landscape. He was also bold and opinionative enough to dare and to dictate; and, born with a genius, to strike out a great system from the twilight of imperfect Essays Though he realized the compositions of Poussin and Claude, the greatest masters in classic landscape painting, yet Kent, says his lordship, was neither without faults nor assistance, for it was Alexander Pope who contributed to form his taste; and the gardens at Carlton House in London, which he laid out, but since destroyed to make way for a noble terrace, were probably borrowed from the Poet's at Twickenham.†

In the reign of George III. Kent was succeeded by Brown, a most eminent landscape-gardener, whose reputation became so great at the time, that he was employed by nearly every nobleman in the kingdom, either to lay out or remodel the grounds around their mansions; and so pleased were they, that they styled him, Capability Brown, by which epithet he was known. Mahomet imagined an Elysium, but Brown converted many seats and grounds into terrestrial paradises.‡ He possessed an originality of conception, and had, like Shenstone before him, a poet's eye, and an innate taste for rural embellishment.§ He saw the deformity of perverted beauty with keener optics than his predecessor Kent, and viewed nature with the enthusiasm of a lover, and was at last animated and inspired by some of his own creations: and though it cannot be denied that he sometimes tricked her out in meretricious ornaments, and patched her with too refined an art, he never lost sight of her prominent charms,

genius as a layer out of grounds; some suppose at Claremont, but that he planned the grounds at Esher we have evident proof in the Essays of Pope, who says,

"Here Kent and nature vied for Pelham's love."

That he excelled in this art we have further authority from Mason, the Poet, who has extolled Kent's elysian scenes in the highest style of panegyric; and observes in a note, that he used to pride himself in shadowing his more finished pieces with evergreens, which painter-like practice has since his death been amplified and recommended for practice by Wheatly, in his "Observations on Modern Gardening."

* Previous to Kent's commencement of landscape-gardening, Addison had given hints for improving the old geometrical system of landscape-gardening, in his papers on the Imagination, published in the Spectator so early as 1712, which ought to be read and studied. And Pope, in the Guardian in the following year, attracted the attention of noblemen and gentlemen, by condemning the verdant sculptures which had been long practised in the topary style; and he afterwards wrote a poetic epistle to Lord Burlington, Kent's patron, where he laid down the justest principles of the art, and recommended the study of nature, and the necessity of consulting the genius of the place.—(B.)

† Stowe, where such a concatenation of talents has been engaged, was one of the principal works of Kent. This place, which has now been celebrated for its pleasure-grounds for nearly a century, when beheld at a distance, looks like a vast grove interspersed with columns, obelisks, and towers, emerging from a luxuriant mass of foliage. A stranger in passing through the grounds is astonished at the number, the beauty, and the magnificence of the buildings; and the house with its extended front, elevated site, and extensive prospects, is a truly grand object. The friends of Lord Cobham seem to have considered him as the first who exhibited the new style to his country, if we may judge from the concluding lines of an inscription to his memory, on an obelisk in the garden, ET ELEGANTIORI HORTORUM CULTU HIS PRIMUM IN AGRIS ILLUSTRATO PATRIAM ORNAVIT, 1747.—(Seeley.)

‡ Launcelot Brown was born at Kirkdale in Northumberland, and bred a gardener. After some years he went to Woodstock in Oxfordshire, where he followed that business, but in process of time became head gardener at Stowe in Buckinghamshire, where he continued till 1750, when he left, and was engaged as gardener to the Duke of Grafton, at Wakefield Lodge, Northamptonshire, where he directed the formation of a lake, which laid the foundation of his fame and fortune. Lord Cobham, his patron, afterwards procured for him the situation of royal gardener at Hampton Court and Windsor. From this time he was consulted by the first nobility, and among others the Duke of Marlborough, at Blenheim; there he threw a dam across the vale, and the first artificial lake in the world was completed in a week. By this undertaking he entirely obtained the summit of his popularity. The fashion of engaging him, says Mason, continued to 1768. Improvement was the passion of the day, and there was scarcely a country gentleman who did not, on some occasion or other, consult the royal gardener. In 1770, we find he had the honour to serve the office of high sheriff in the county of Huntingdon, and in 1773 he died, probably in that county. Repton, who styles him his great self-taught predecessor, has given us a list of his principal works, the places he altered are beyond all reckoning. He also occasionally acted as an architect; Croom Court, the seat of the Earl of Coventry, in Worcestershire, was planned by him, and the ornamental grounds are amongst his best works. At Compton Verney, in Warwickshire, he built a bridge across a sheet of water, which greatly enhanced the foreground, and gave a noble effect to this elysian scenery. It is supposed he was never out of England, but he sent pupils and plans to Scotland and Ireland. Poulowsky, a seat of the late Emperor Paul, near St. Petersburgh, is supposed to be from his design. Mr. Loudon says, he gave estimates for the execution of his works, and amassed a considerable fortune; and dying without issue, his property descended to his nephew. Where he was buried I have not been able to ascertain, but most probably in Huntingdonshire, as he was sheriff of that county about three years before he died. He left no published works or MSS. on the subject.—(Author.)

§ Shenstone, says Dr. Johnson, in coming into possession of his paternal estate—the Leasows in Shropshire—went to live on it, and "now was excited his delight in rural pleasures, and his ambition of rural elegance, he began from this time to point his prospects, to diversify his surfaces, to entangle his walks, and to wind his waters, which he did with much judgment, and such fancy as made his little domain the envy of the great and the admiration of the skilful, a place to be visited by travellers, and copied by designers."—(Lives of the Poets.)

and his worst errors can only be considered as minute pimples on a beautiful face. Now, to unite rural ornament with convenience of habitation, is considered the most common object of the artist; in this it must be said of Brown, says Marshall, in his Review of the Landscape written by Payne Knight, "that he had raised the art of embellishing natural scenes in the more immediate environs of fashionable residences to a degree of excellence and unity, and with a rapidity which no other liberal art ever experienced, by which he raised the envy of those who did not, or would not, understand his principles, amongst whom was Sir William Chambers, the king's architect, who declared, that if the mania were not checked, in a few years longer there would not be found three trees standing in a line between the Land's End and the Tweed.* Here justly might the Poet say,

> "He who would free from malice pass his days,
> Must live obscure and never merit praise."—JOHN GAY.

The next great luminary in landscape-gardening, to which many of our noblemen and gentlemen's seats owe their charms, and brings the progress of the art down to our own time, was Repton.† This artist, varied from Brown in respect to the picturesque; in every other point he was a great defender of his principles, though he did not follow them. He was a beautiful draftsman, and began his career as a professor of landscape-gardening, about 1788. He gave, besides plans and views for improvement, his written opinion, in a regular form, generally combining the whole into a manuscript volume, which he called the Red Book of the place, (but more appropriate if styled the Green Book). He was extensively consulted, though it is believed he never (like Launcelot Brown) undertook the execution of his own plans. The magnificent grounds at Asheridge, belonging to the Duke of Bridgewater, in Berkshire, were laid out by Repton. We are not aware that he was ever employed out of England, but Vallyfield, in Perthshire, was visited by his two sons, and arranged from their father's design. The character of this artist's talents, says Mr. Loudon, seems to have been cultivation rather than genius, and he seems to have been more anxious to follow than to lead, to gratify the preconceived wishes of his employers, and to improve on the fashion of the day, rather than to strike out new and original beauties. Repton's taste in Architectural appendage to country seats was particularly elegant, and his published works on this subject are valuable, and so are his observations on landscape-gardening.

* The chef d'œuvre of Brown was the improvement of Blenheim in Oxfordshire: there he had the noblest field to display his talents, and he did not labour in vain. Kent's plan had been to alter the old stiff method of laying out grounds; Brown's system was to explode and form a new one of his own; in this he was sure to be attacked, which was afterwards verified. "The system of Brown, (said Gifford, the editor of the Quarterly Review, in 1795,) has been contemptuously called by its present opponents, a system of clumping and belting, but we are convinced that these critics in the rural art have ridiculed what they did not or would not understand. They consider Brown's means as his ends, and they laugh at his taste, because in certain cases beauty and the picturesque are not immediately produced; where scenery is absolutely to be created plantations must be raised; in order to be raised they must be defended, and the formation thus produced must be regarded rather as scaffolding of the building than as the building itself. Brown made clumps and belts; but he evidently did not purpose that they should always remain the heavy and formal masses which they appear. When first planted he saw in them the latent possibility of beauty, and viewing in his mind's eye the good purpose to which the rural artist may hereafter apply them in the imitation of forest scenery, he ordered and endured them. Many, however, not perceiving Brown's ideas, have made formal clumps and belts, thinking that they must be beautiful because Brown made such things; now here is a misapplication of principle. They do not distinguish between places to be created and places to be formed, places which are to be new, and places to be improved; between places capable of any of the minute beauties, and those which possess the sublimer graces, between the dressed garden immediately round the mansion, and the distant grounds or prospect. Observations which apply to one cannot apply to the other." Mr. Marshall endeavours to draw the line, and we think very properly, between that department of landscape scenery, which is the province of the picturesque, the grand and the sublime, and that of the dressed garden. The smoothness and edginess admissible in the latter is as much to be censured when extended to the former, as the rough features of the former would be, were they to be brought immediately under the drawing-room windows.—(B.)

† Humphrey Repton was born at Bury St. Edmunds, in Suffolk, in 1752. When Mr. Windham, of Norfolk, went to Ireland in 1783, he accompanied him, and for a short time held a lucrative situation in the Castle of Dublin, but when his friend quitted that country, Repton also with him returned to England. He here directed his attention to the study of architectural drawing, and there too that of landscape-gardening, in which last line he excelled, and for many years obtained considerable employment. He died in 1818, in Essex, but was buried at Aylsham, in Norfolk, about twelve miles from Norwich, towards Cromer, in a recess or nook of the churchyard, having a piece of turf-lawn attached, and planted with roses and heart's-ease; the whole inclosed within iron railings. He left several sons, one of whom had been bred an architect, under the late Mr. Nash, and married a daughter of the late Lord Eldon; he has been employed to make alterations to Kitly House, the seat of John Polexfen Bastand, Esq., and to remodel Peamore House, the seat of Samuel Trehawk Kekwich, Esq., both in Devonshire. He was also the architect to the Episcopal chapel in Waterloo-place, London. I believe, however, that since the death of his father-in-law he has retired from practice. Humphrey Repton has published several excellent books on the art of landscape-gardening which are highly esteemed.—(R. B.)

PRELIMINARY ESSAY.

"To build, to plant, whatever you intend,
To rear the column, or the arch to bend,
To swell the terrace or to sink the grot,
In all let nature never be forgot.
But treat the goddess like a modest fair,
Not overdress, nor leave her wholly bare;
Let not each beauty everywhere be spied,
Where half the skill is decency to hide;
He gains all points who pleasingly confounds,
Surprises, varies, and conceals the bounds."—POPE.

In landscape-gardening the art is directed to various objects, and some of them of a higher kind than are belonging to culture. In the branch under consideration, art is exercised in disposing of ground, water, trees, and ornamental buildings among the same, as well as shrubs adjacent to the mansion, which enters into the composition of verdant landscape. This, in a strict sense, is what is termed landscape-gardening; but landscapes are seldom to be created for their own sakes. Landscape-gardening as actually practised may be defined, the art of arranging the different parts which compose the home-scenery around a country-seat, so as to produce different beauties and rural walks, of which that scene of domestic life is so susceptible. However, without natural taste, the professor of landscape-gardening will never excel. It also requires genius to seize the grand outline with the mind's eye, to adapt the design to the predominant features in the landscape, and to unfold the beauties of nature by the masterly touches of art:* this is the sublime province of the ornamental composer of rural scenery.

The general rules to be observed in ornamental landscape-gardening, we consider with Monsieur de Girardin, to be the following:—

"To form the perspective or side scenes of the fore-ground that may best connect the distance with the principal points of view.

"To raise such elevations or scenes as may give relief even to an absolute flat.

"To hide all disagreeable objects.

"To give more extent to those that are pleasing, by concealing their terminations behind a mass of wood, by which means the imagination continues them beyond the point where they are seen.

"To give an agreeable outline to all surfaces, whether of land or water."

These are the ideas of a master, and if we would reduce those rules to practice, we must perfectly understand the subject, and before we commence the improvement of nature, let us recollect what are her peculiarities and genuine beauties. Such are undulating grounds, the shade of trees, woods, the varied greens of foliage, the meandering course or fall of water, from which everything beautiful in landscape-gardening is to be inferred and observed, according to their various dispositions and arrangement. Pleasing distances, termination of prospects, and the innumerable singularities in the disposition of objects which accident shows in particular places, and many others which we would try in vain to imitate.

Now variety is certainly desirable, connected with openness of scenery towards the passing sun; but the difference between the walks and what we so much admire in the Italian, is the extreme. The most improved of our pleasure-grounds seem to possess the medium line, or nearly so. To carry into our best plantations more of this wildness, seems the great desideratum to render them yet more pleasing. The description of groves is a consideration not enough regarded: we err here greatly: we plant too close, and we make the walks too narrow: the person who goes into them to be free from the sun, is choked for want of air, and the same closeness occasions a continual dampness under foot, slippery and dangerous at certain seasons of the year; everything in them is gloomy and disagreeable, more the abode of melancholy than cheerfulness. Instead of this, a kind of retired pleasure might be diffused even

* The term genius is frequently confounded with that of taste; but on investigation the difference is obvious: taste induces the admiration of any superior work of art, while genius possesses the power of producing it. A person may have taste to admire a production in the fine arts, while he has neither genius to conceive, nor talent to produce it; but where there is genius, there will, in most instances, be taste also.—(M.)

there, and we may have solitude, shade, and retirement without a savage darkness or a dreary walled alcove. In these parts let the landscape-gardener consider both the outer aspect and the inner disposition. We are too formal in the plantations; let us remember how it is in nature; irregularity is there the beauty, and it must be considered here by intermingling trees of different forms and coloured verdure. Thus, there will be an object of interest from some turn of the plantation, or from several joined; if the plantation be formed with judgment, there will always be variety. Let us consider the autumn, which comes on gradually: when the leaves change colour before the fall, some become brown, some yellow, some red, while others change their green entirely to paleness; these variations well known, and trees of different hues judiciously intermixed, will paint the masses by which every eye will be surprised and delighted; it will be beauty and it will be nature.

This much considered, the walks will be diversified, and, answering to the various points of the compass, give shelter on every occasion from the bleak winds and fervent sun. The form prescribed for those walks as the most graceful, is the serpentine; but though the idea be just, we often see it badly executed; the paths are sometimes too much curved, twisted, and narrow; by this they are disagreeable, abrupt, and gloomy. On the contrary, let them have a considerable breadth, and we shall be able to walk in them with pleasure; the trees will not then close so thick at top as to shut out air, still give a sufficient shade from the sun; we shall at the same time have freedom, ease, and elegance. Let the serpentine walk have few, and those be slight turns, and here and there let an aged fantastic tree, with all its natural ruggedness of bark, break in upon the uniformity and partially obstruct the walk, where a seat may be placed. Let the plantation be made of selected trees, as we have suggested, and have good distances from each other; they will grow more vigorously, and the walks be more salubrious. This open space of planting will give room for flowering shrubs; and here the lilly of the valley, the primroses, violets, and kingcups may lurk, "with all the lowly children of the shade." Thus may groves and plantations be formed equally ornamental and exhilarating to the other parts of the garden, elegant and pleasing in themselves, and fit to form arbours in which to place pedestal statues of rural deities, terminals, temples, alcoves, and various decorative structures.

"The proprietor will here be able to walk, meditate, and view nature's productions, and have sufficient vision of all her charms displayed around him. This will result from the same cause, that is, from the uppermost or distant part of the plantation; the growth of every tree being left free and disengaged, spreads as nature sends forth its wide branches, they are all clothed with lively leaves, and as they play about with every gust of wind scatter the trembling shade, while dancing in the air on the walks below, while they admit a free course to the whole plantation. Even straightness in a path of this kind is not always unpleasing where the grand heaven is seen through the opening of an amazing vista, the air and sky make a kind of sea-view, the country only appearing on approach at the end of the avenue. The external aspect of the plantation can only appear as waving masses of trees, and in these there is a wildness which we have directed the gardener to improve. The naturally gloomy air that would be assumed there is rendered cheerful by opening glades, by the variety of hues, which well chosen trees always produce when in their perfection as in their decay; thus advantage is to be taken of what appears to less considerate minds the imperfection of nature. It is, nevertheless, contrast and variety that please us, but this must be chaste, harmonious, and without glare." (Morris.)

Whatever may be the number of distinct characteristics which the forms of ground possess, there is an equal number of different proportions required in their composition to be either picturesque or grand, and so strong is this natural determination of the beauty of composition, that after admiring the outline of one scene, we very often, in a few minutes after, find equal beauty in a composition of a totally different kind, when it distinguishes a scene of an opposite character. In a good combination of ground, the style of every part must accord or be accommodated to the character of the whole, for every piece of ground is distinguished by certain properties. It is either tame or bold, gentle or rude, continued or broken, and if any variety inconsistent with those properties be obtruded, it has no other effect than to weaken one idea without raising another. The insipidity of a flat is not taken away by a few scattered hillocks; a continuation of uneven ground can alone give the idea of irregularity. A long deep abrupt break among easy swells and falls seems at least but a piece left unfinished, and which ought to have been softened; it is not more natural because it is more rude; on the other hand, a small, fine, polished form in the midst of rough mishapen ground, though more elegant than all about it, is generally no better than a patch, itself disgraced, and disfiguring the scene. A thousand instances might be added to show that the prevailing idea ought to pervade every part, so far, at least indispensably, as to exclude whatever distracts it, and as much further as possible, to accommodate the character of the ground to that of the scene to which it belongs.

"The same principle extends to the proportion and to the number of parts; ground is seldom beautiful or natural without variety, or even without contrast; the precautions which have been given extend no further than to prevent variety from degenerating into inconsistency, and contrast into contradiction. Within the extremes nature supplies an inexhaustible fund, and variety, thus limited, so far from destroying, improves the general effect; each distinguished part makes a separate impression, and all becoming the same stamp, all concurring to the same end, every one is an additional support to the prevailing idea. An accurate observer will see in every form several circumstances by which it is distinguished from every other. If the scene be mild and quiet, he will place together those which do not differ widely, and he will gradually depart from the similitude. In ruder scenes the successive will be less regular, and the transition more sudden. The character of the place must determine the degree of difference betwixt contiguous forms; the assemblage of the most elegant forms in the happiest situation, is, to a degree, indiscriminate, if they have not been selected and arranged with a design to produce certain impressions; an air of magnificence, of simplicity, of cheerfulness, tranquillity, or some other general character, ought to pervade the whole; and objects pleasing in themselves, if they contradict that character should therefore be excluded; those which are only indifferent must sometimes make room for such as are more significant; many will often be intruded for no other merit than their expression, and some which are, in general, rather disagreeable, may occasionally be recommended; even barrenness itself may be an acceptable circumstance in a spot dedicated to solitude and melancholy." (Wheatly.)

Now the great secret in laying out ornamental grounds is to preserve the accurate character of every scene, whether original or created; so it is the same principle that determines the opinion of men with regard to its beauty. All rules with regard to the forms of ground, of water, of wood, of rocks, and of buildings, may be referred to this leading principle, and that they are nothing more than investigations of the character of the different forms and directions, how to apply them in scenes of different natures and expressions. The same principle of diversity attaches to the vegetable forms, many of the class of trees, as round-heads, spirey-heads, and pendants, have likewise distinct characters differing in shape; again, colour, as green, brown, buff, &c. all those are sufficiently distinguished for the purposes of variety. If they differ in two or three they become contrasts, if in all, they are opposite, and seldom groupe well together, looking like so many spots. Those are the contrary which are of one character, and distinguished only as the characteristic work is strongly or faintly impressed upon them; as a young beech, for instance, and a birch, or acacia, and the larch, all pendant, though in different degrees, for a beautiful mass in which variety is preserved without sameness. The same principle is followed in landscape-painting as in the disposition of the different colours. It is not the mere mixture of colours that is beautiful, but their association and harmonious variety. In the different colours that are arranged upon a painter's pallet, we say there is no beauty, because there is no relation; what then is the relation which is necessary to constitute a beautiful composition? it is not then mere relation or colours, because colours of very different kinds are found to produce beautiful compositions. It is not any established relation between particular colours which are beautiful, because in different subjects different compositions are necessary, it is the relation of expression. In natural scenery, for instance, the colours of the great ingredients—ground, water, wood, rocks, and edifices—are very different, and are susceptible of great varieties. In every scene which is expressive, we look for and demand a variety in the expression of the different colours. We often find fault accordingly with the colour of particular objects in such scenes, and say they are too solemn, too glaring, or too rich for the rest of the scene. The vivid green, which is sometimes pleasing in a cheerful landscape, would ill suit a scene of melancholy or desolation. The brown heath, which so singularly accords with the scenes of gloom and barrenness, would be irreconcilable in a landscape of gaiety. The grey rocks which throw so venerable an air over grave and solemn scenes, would have but a feeble effect in the scenes of horror. The silvery and peaceful purling stream, meandering on its mazy way, which gives such loveliness to the solitary valley, would appear altogether out of place amid scenes of rude and savage majesty. Perhaps a more impressive picture could not be presented than the one drawn by Robert Burns of Scotch scenery:—

Admiring nature in her wildest grace,
Those northern scenes with weary feet I trace,
The meeting clifts each deep sunk glen divides,
The woods wild scattered clothe their ample sides.

The outstretching lake embosom'd 'mong the hills,
The eye with wonder and amazement fills;
The Tay meandering sweet in infant pride,
The palace rising on its verdant side,

The lawn's wood fringed in nature's native taste,
The hillocks dropt in nature's careless haste,
The arches striding o'er the new-born stream,
The village glittering in the noon-tide beam.

Poetic ardours in my bosom swell,
Lone wandering by the hermit's mossy cell;
The sweeping theatre of hanging woods,
The incessant roar of headlong tumbling floods.

"The great difference in the colours of trees requires attention in their composition and formation into groves. If the oak, the ash, the birch, the fir, the willow, &c. were mixed together indiscriminately, every person of discernment would exclaim at the impropriety of the composition, and say, that there was no relation, and no character preserved. Unite, however, any such trees as are distinguished by colours of a similar kind, the composition will be beautiful and harmonious, and the variety will only serve to enhance and strengthen the expression. Different compositions of colours are also necessary in the different appearance of trees, as a clump, a thicket, a grove, or a wood. The same degree of uniformity in colouring, which is beautiful in a wood, is displeasing in a thicket, or open grove; the same degree of variety which is beautiful in these is unpleasing in the other. To what causes then shall these differences be referred but the differences of character to the airiness and gaiety of the one—to the majesty and solemnity of the other?" (Alison.)

The scenes of nature, too, sometimes derive their character even from the seasons of the day in which they are viewed, and the aspect which they regard. How much the beauty of the composition of colours in such scenes arises from the composition of their expression will appear on future investigation. Some scenes and situations of objects are in themselves adapted to receive, or to make the impression which characterizes the principal parts of the day; their splendour, their sobriety, and other peculiarities, recommend or prohibit them upon different occasions. The same considerations direct the choice also of their appendages, and in consequence of a judicious assemblage and arrangement of such as are proper for the purpose. The sobriety of the gray morning, the radiance of noon, and the temperance of the evening, may enhance or improve the application of the scene to the season. In the morning the freshness of the air allays the force of the sunbeams, and their brightness is free from glare; the most splendid objects do not offend the eye nor suggest the idea of heat in the extreme; but they correspond with the glitter of the dew which bespangles all the produce of the earth, and with a cheerfulness diffused over the whole face of creation. A variety of accordant buildings may also be introduced to enliven the eastern aspect; their colour may be the purest white without danger of excess, though they face the morning sun, and those which are in other respects of a different colour should be so continued that their chimney-shafts, turrets, or other parts may catch some glances of the rays, and contribute to illuminate the scene. The trees in general ought to be of the lighter greens, and so situated as not to darken much of the landscape by the length of their shadows. Vivacity in the purling streams, and transparency in the meandering lake, are more important at this than any other hour of the day: an open expanse is commonly the most delightful in the morning, both for the effect of particular objects, and the general character of the scene.

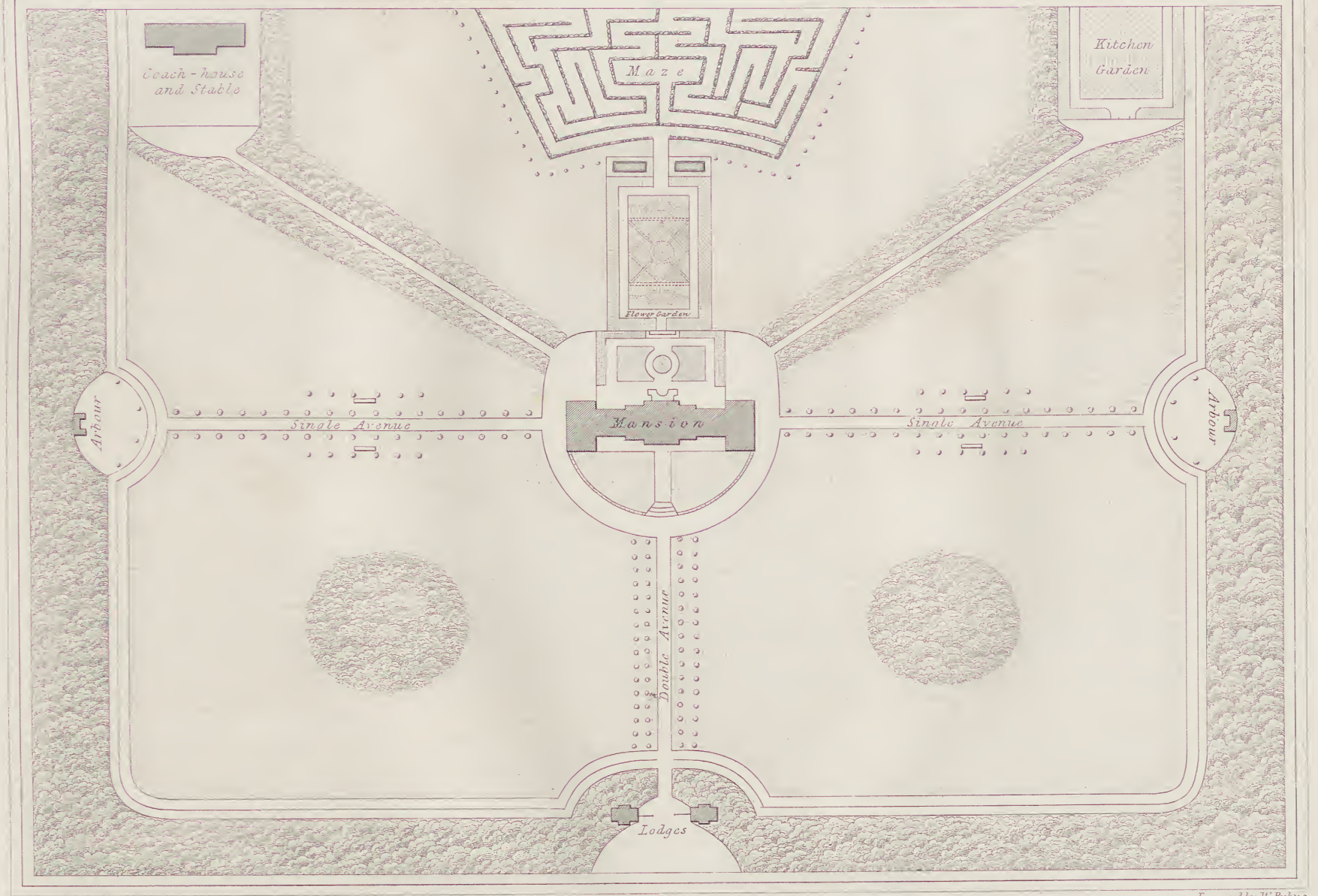
At noon every expedient should be used to correct the excess of the season: the shadows are then becoming vertical and shortened by the considerable elevation of the sun. At the south aspect there should therefore be thickened woods; the open plantations in respect to salubrity are to be preferred to a close covert, as they afford a passage, or at least admittance, for the air, which, tempered by the coolness of the place, refreshes at once the senses, and renders the shade a delightful climate; not a mere refuge from heat. Groves, even at a distance, suggest the idea of coolness to the senses at this time, which they realize upon the spot, and by multiplying the appearances, improve the sensation of relief from the extremity of the weather. Grottos, caves, and cells, are on the same account agreeable objects in a sequestered recess, and though the chill will be hardly ever tolerable, the eye catches only an idea of coolness from a sight of them. Other buildings ought in general to be cast into shade, that the glow of reflection from them may be observed. The large expanse of a lake is also too dazzling, but a broad river moving gently, and partially darkened with shadows from overhanging trees, is very refreshing, more so, perhaps, than a little rill, for the vivacity of the latter never disturbs the repose which generally prevails at midday; every breeze then is still, the reflection of an aspen leaf scarcely trembles on the water, the animals remit their search of food, and men cease from their labour; the stream of heat seems to oppress all the faculties of the mind, and all the active powers of the body, and any very lively motion discomposes the languor in which we then delight to indulge.

In the evening the shadows are lengthened—all splendour fades—no buildings glare—no water dazzles—the coolness of a lake suits the quiet of the time, and in a western aspect the light hovers there, and prolongs the duration of the day. The open reach of a river has a singular though a fainter effect, and a continued stream all exposed preserves the last rays of the sun along the whole length of the course, to beautify the landscape, which has been most sublimely painted by the talented Poet of Devonshire.

"Look westward, now, where sits the god of day
Upon his burning throne, the glowing clouds
Encircling him with hues no pencil dares
To emulate. In vain the floating pomp,
The golden blaze, the emerald tints, the sea
Of sapphire, and the islets blest that soil
The etherial ocean—pensively we gaze
On that which should divinest pleasure yield,
And fain would friendship, like the chief of old,
Arrest the course of yon departing sun,
But oh! in characters as true, as grand
And beautiful, those evanescent streaks
Which now he scatters o'er the burning heaven
Foretel the rapid close of day.
'Tis a scene
Worthy the magic of the painter's skill."

CARRINGTON'S *Banks of the Tamar.*

But a brisk current is not so consistent as a lake with the tranquillity of evening and other objects should in general conform to the temper of the time of the departing day; buildings of a sombre hue are most agreeable to it; no contrast of light and shade can then be produced: but if the plantations, which by their situations are the first to be observed, be of the darkest green—if the buildings which have a western aspect be of a light colour—and if the management of the lawn and the water be adapted to the same purpose, a diversity of tints will be preserved long after the greater effects are faded.



R. Brown Arch.t

Engraved by W. Pybus.

ANCIENT METHODS OF LAYING OUT GROUNDS.

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PLATE LVI.

PRINCIPLES OF LAYING OUT GROUNDS ADJACENT TO A MANSION IN THE ANCIENT STYLE.

"What is Nature? ring her changes round,
Her three flat notes are water, plants, and ground."—PAYNE KNIGHT.

IN forming a comparison of the two styles of landscape-gardening, ancient and modern, of which we are about to treat, "it appears," says Mr. Knight, "that what constitutes the chief excellence of the old garden is richness of decoration and effect, and an agreement with the same qualities in architecture as the mansion; its defects are stiffness and formality. The excellences of the modern gardening are undulation of ground, diversity of plants, and a more varied and natural disposition than has hitherto been practised:—its defect, when considered as accompanying architecture, perhaps, a uniformity of character too nearly approaching nature.*

The ancient style of gardening, which consists of single and double avenues, was not intended as an imitation of nature, but professedly a production of art. The practice of embellishing with clumps and inclosing grounds by belts, and thick masses of plantations, as shown in the annexed Plate, is now obsolete, and should not therefore be practised. It in too decided a manner defines that which should be avoided; and parts are here made to advance which should fall back. Where thick plantations and broad masses of shade exist in the distance, they mar the effect of beautiful landscape, encroach upon the limits of the ground, and evidently betray how far the hand of art has been directed. No true admirer of landscape scenery will admit that surrounding the grounds with a belt or thick plantation, which everywhere marks the termination of property, can be reconcilable with good taste.† It is however admitted, in some situations where such plantations are essential to particular residences, and where some parts can be made to produce the pleasing effect of a vista, and increase the variety of outline.‡ There must necessarily be considerable difference in the style of laying out grounds around a rural residence, which must depend on, or be adapted to the extent or particular circumstances attached to the situation and the style of the mansion, which is to be the principal object in the picture. Upon a limited piece of ground attached to a rural cottage or small villa, perhaps no greater portion than may be composed in the view from the villa should receive such embellishments, here the endeavour must be to introduce as great a variety as can consistently be admitted, but an extensive piece of ground affords proportionate opportunity for the landscape-gardener to display his taste and ingenuity in producing ornamental and picturesque effects, as a greater diversity of subjects, both natural and artificial, may there be judiciously and appropriately introduced.

Planting for park scenery within view from the mansion, should have ornament for its principal motive; the formal and incongruous avenue, the massive clump, have no kindred association with the beauties of nature, and are therefore altogether to be rejected; but where there is a stately avenue joined to a revered pile of ancient monastic times, such should be respected, and not destroyed. To alter the appearance of an avenue will require years of growth, and the cutting away part to change the effect has rarely been attended with the desired success. It has lost its wonted grandeur, remained a mutilated avenue, and the chasms have been viewed with sad regret.§

* Essay on Decoration near the house. Note. The maze at the end of the flower-garden is from the one at Hampton Court.

† This practice was formerly adopted when the adjoining property of another land-owner was neither to be purchased nor obtained in exchange:—

"He will not sell, nor borrow, nor exchange,
And his land lying in the midst of yours
Is a foul blemish."—(Massinger's New Way to Pay Old Debts, Act ii. Scene 1.)

Thus Marral says to his patron—

"What course take you,
(With your good patience) to hedge in the manor,
Of your neighbour, Master Fryal? As it is said."

‡ Many errors have been committed by persons conceiving the true art of landscape-gardening to consist on all occasions in curved walks, and similarly-formed plantations, which at a short distance blend into such regular and formal shapes as to appear as if they were clipped. Let it not be conceived for a moment, that such forms can have any claim to the picturesque. The painter and the landscape-gardener in their productions should have the same motive, that of gratifying the eye of taste; the forms produced by clumps and belts, which were both an advance on the avenue should be rejected, as they afford little or no variety in their outline, and produce a formal and confined effect at variance with nature. "Clumps," says Mr. Price, "placed on summits of hills which we see near many noblemen and gentlemen's seats, alarm the picturesque traveller many miles off, and warn him of his approach to the enemy; the belt lies more in ambuscade, and the wretch who falls into it, and is obliged to walk the whole round in company with the *improver* will be forced to allow, that a snake with its tail in its mouth is comparatively but a feeble emblem of eternity."—(Price on the Picturesque.)

§ The avenue was succeeded by the belt without its redeeming grandeur. In an avenue similar objects are seen from beginning to end. In the belt, at intervals of twenty yards, groups of trees succeed each other throughout the insipid circle, without the least relief in variety. The contrast of masses with groups must not be too strong when grandeur is the character of the scene, for variety is essential to greatness in this particular.—(Author.)

PLATE LVII.

PRINCIPLES OF LAYING OUT GROUNDS AROUND A COUNTRY MANSION IN THE MODERN STYLE

> "To make the landscape grateful to the sight,
> Three points of distance always should unite,
> And howsoe'er the view may be confined,
> Three marked divisions we shall always find."—PAYNE KNIGHT.

To form the surface of the grounds which surround the proposed mansion into fore-ground, middle-ground, and distance, demands all the skill of the landscape-gardener; it is by the judicious employment of the power to create unequal surfaces, to obscure or obliterate existing deformities, and to render conspicuous those beauties which are hidden or neglected, that forms the basis upon which the elegance and importance of the art is founded. It is of the utmost consequence that the entire design of the whole should be seen by the architect with a painter's eye, that the projected outlines of the building, the lawn, shrubberies, woods, water, &c. should be discerned at the commencement, regulate every exertion during the progress, and promote the intended display of nature and art at the completion.* In considering the surfaces of ground, the breaks, the cavities, and all the inequalities of the park should be noticed; and if the spot which is fixed upon for the mansion should be level, or that near the site of the house be lower than the surrounding parts, such spots should be raised, not merely to make them appear dry and comfortable, but to render them so in reality. In doing this, if the soil necessary for the purpose be taken from some adjoining land, the effect is more speedily produced, and an undulated surface may be formed in view from the house, which gives the desired variety, and assists even where the grounds are very limited in producing the pleasing effect called the picturesque. A flat surface at all times appears to contract the view, while an undulating outline contributes to an appearance of extent. Monotony of surface fatigues the eye, and is insipid compared with irregularity of contour; if nature has given such surfaces, then it is to be considered whether the concave, the convex, or the level be well disposed for the different points of view. It often happens, that accidental deformities and natural excrescences may be rendered ornamental, and assist considerably in producing the picturesque or the beautiful.†

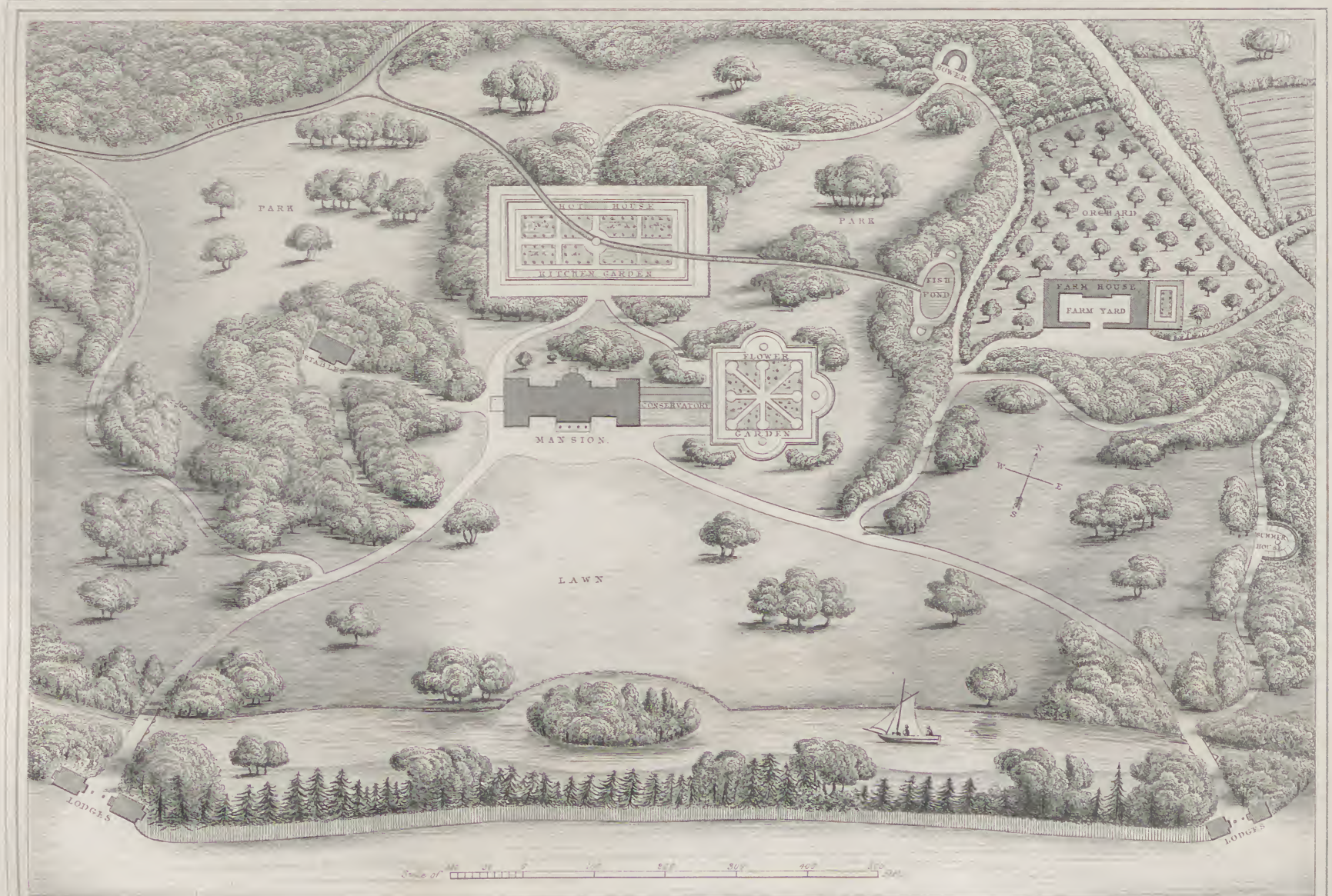
Of carriage roads, the most considerable must be that leading to the mansion; here the entrance into the park should be fixed upon before the line is marked out, and advantage should be taken of some well-grown tree or plantation on a wide part, or at a sweep on the public road, from which to form an easy and convenient park entrance. It is considered bad taste to branch one road from another at right-angles. And in directing the course of a drive or walk, nothing can be more annoying than the prospect of a straight line over which one is to travel after having previously surveyed it, and it is rendered more objectionable when the object approached is immediately before the eye. Where there is no diversity in the line of the road nor change of object, the mind becomes wearied of the sameness; and the grandeur of the mansion, which should burst upon the view in all its impressive magnificence, is lost;‡ but when the road is conducted in a winding direction, the path so favouring it, the object is alternately, now hidden, now viewed to advantage, and the imagination is excited by the variety; although the road may be more circuitous, this is fully compensated by the beauty and continued interest of the scenery. It is desirable that distant parts of the

* All natural objects should be presented to the sight, though the means by which they are produced be sometimes laborious. It is by practice and intimacy with the subject that the landscape-gardener is enabled to decide where and how improvements may be effected; for there is a material difference between altering and improving, which many theorists have discovered too late. It is not by forming in the mind's eye a rural scene, either picturesque or beautiful, and desiring it to be realized, that can produce it; there is no such talisman in the power of the theorist. Many designs there are which cannot be executed, though at the commencement of the work no obstacle was presented; thus expense is incurred, time is lost, disappointment follows unsuccessful effort, and the final impossibility of attaining the object confounds the projector and the operator.—(B.)

† Whatever arrangement may be made in the form of the grounds, it is of importance to conceal such objects as define the boundary, whether on a limited or more extensive scale. In laying out the grounds, much may be done to destroy the highly displeasing appearance of a fence, and although fences must of necessity be used, it is bad taste to exhibit them as a surrounding border with a walk in the front, which too much defines and invites to an examination of the limits of the property.—(B.)

The modern style of laying out shrubberies, Dr. Johnson says, very justly, is to plant a walk in undulating curves, and to place a bench at every turn where there is an object to catch the view, to make the water run where it will be heard, and to stagnate where it will be seen, and to leave intervals where the eye will be pleased, and to thicken the plantation where there is something to be hidden. —(Life of Shenston.)

‡ An example of this may be seen in the approach to an extensive mansion in the North of England, where a straight road through a park two miles in length leads up to the house, which is ever in view; first in semblance of a cottage, then as a respectable house, and, finally, as a magnificent and elegant mansion, which is its true character.—(R. B.)



MODERN METHOD OF LAYING OUT GROUNDS.

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road should be seen from the house; its colour as well as the objects occasionally driving on it enliven the uniformly green hue of the park. It is equally worthy of consideration, that the road should not command a view of the pleasure-grounds, nor approach the sitting-rooms in front of the house. An occasional view of the house between trees has a good effect, and from other parts of the road a full view, or as good a prospect of the mansion as possible should be presented, that the first impression may be favourable; this may be deemed taking the visitor by surprise, but it is justifiable, as a good exterior is considered evidence of an agreeable interior, and if any object on the approach appear crude or insignificant, an increased exertion of art will be required to subdue any unfavourable effects which may have been excited.*

From the house there must always be a main walk, from appropriate points of which others should branch to the several parts of the garden, park, &c. and should be so disposed as not to command a view into any of the rooms. Gravel-walks should be rarely seen from the windows; where the extent of the grounds will admit, they should be dispersed among the plantations with occasional openings upon different views: the great art in this depends upon judiciously directing the windings of the walks, and varying the views of artificial and natural objects, so that the spectator may not be aware that he is at times nearly retracing the ground he has previously passed; thus a greater extent will be made to appear than really exists. Wherever paths are turned they should lead to the beauties of the scenery. Hilly or mountainous walks should have gradual and regular ascents, at times amidst broken rocks, interspersed with Alpine shrubs, then winding through the umbrageous plantations to the sequestered vale, treading the banks of a gentle stream, embellished with appropriate plants, then towards some statuary figure on the border of a shady grove, or to a temple dedicated to Peace, to a cascade, or where a river falls and foams along its rocky bed. In short, such walks should be judiciously directed, and lead wherever any object may be seen to excite admiration, or tranquillize the mind to calm reflection. A scene like this produced the following effusion:—

"Here, the transport most allied to song,
Is in some villa's peaceful bound,
To catch soft hints from nature's tongue,
And bid Arcadia bloom around.
Whether we fringe the sloping hill,
Or smooth below the verdant mead;
Whether we break the falling rill,
Or through meandering mazes lead.
Oh! let some sheltered lake serene,
Reflect the groves and brighten all the scene."

One of the most pleasing appendages to a villa is the flower-garden; it is perhaps calculated to encourage a taste for the beauties of nature, and is one of the most rational, healthful, and agreeable of pursuits. "It is the purest of human pleasure," says Lord Bacon. The situation of this delightful retreat should not be distant from the house; it should be of easy access, and so situated that it may be surrounded by a plantation for the purpose of shelter and retirement; it may sometimes, with good effect, be made to range with a conservatory attached to the residence, but this must depend on the position of the mansion, and the form of the adjacent grounds; it is an additional gratification to step from the conservatory into the flower-garden.†

The kitchen-garden is an appendage to a country mansion of such utility and importance, that it deserves the utmost attention. In selecting a suitable spot, it should be so situated that it does not interfere with or obstruct any of the views from the front of the house; it will, in general, be better situated towards the back of the house for the convenience of a free communication with the domestic offices, as well as for its arrangement with the surrounding scenery. It is inconvenient to place it too distant from the house; it should, if possible, be made to arrange with the shrubberies which are attached to the pleasure-ground. In some situations it may be found necessary that the kitchen-garden should have a plantation round the whole as a screen; in such cases it

* The best manner of making those roads we shall describe. The system long adhered to of making a foundation to the depth of nearly three feet, the lower part being filled with coarse materials to act as drainage, renders paths pervious to water, and the consequence is, that after heavy dews or partial rain they are in such a state of humidity as not to be walked upon with comfort. In the winter season, the wet weather which frequently precedes a hard frost, saturates the walks, the frost penetrates, and when a thaw takes place they become rotten to the foundation, and are rendered quite impassable. This evil is not only remedied, but much expense for materials and labour saved by adopting the following rules. Take from the line of the intended walk eight inches of the earth, then fill it up with coarse good binding gravel, and if there be large stones among it, they should be broken into pieces of about an inch square, the whole should be firmly beaten down, after which the surface may be loosened with a rake; about one inch in depth of fine gravel should then be laid on and well rolled; if the foundation be imbedded in a layer of chalk it becomes more adhesive, and by taking care to lay the walk so that the water may be conducted to particular parts, and thence carried off by drains, the surface will be rendered firm, clear, and dry. Roads and walks thus constructed will be in every respect more satisfactory than those made upon the old system.—(B.)

† When the ground allotted for the flower-garden is of such extent as to admit of some portion being grass and shrubs, an uneven surface may be made to exhibit effects truly delightful; and where it is small, and intended only for flower-beds, a gentle declivity presents opportunities to increase the beauties of the variegated blooms of heart-delighting nature. Particular care should be taken against an excess of moisture.—(Author.)

should be at such a distance from the garden as to admit of the walls being planted on both sides with fruit-trees; it should afford shelter, but exclude neither sun nor air,* and if the trees on the shady side are allowed to run their branches above the walls, all those parts will produce abundance of fruit, while those parts against the wall will produce comparatively very little.

The most appropriate place for the stables and coach-houses will be at the west, and at the rear of the house, not far from the kitchen-garden; they should neither be at too great a distance from the mansion, with a pathway direct from the servants' offices, and be concealed among trees; though to have some part of the summits seen peering above the foliage will give importance to the mansion, and produce a picturesque effect.

Farm-houses, if suitably constructed and ornamented, may certainly be included within the decorations of an estate; they are necessary appendages, and may justly be considered as forming an interesting part of the rural scenery. Where a farm is upon a small scale, and is retained in the hands of the owner for private cultivation, the farm-house and buildings may join the park, and still be rendered agreeable objects of interest to the scenery. Where the neighbouring lands are held by tenants, it is not objectionable for one or more farm-houses to be in view from parts of the park: while their appearance denotes utility, they can never become objectionable.†

RETROSPECTION.

The outlines of park plantations, made with a view to utility and the adornment of a country residence, are guided by the same principles, whether the trees are to be disposed in regular forms avowedly artificial, or in forms in imitation of nature. The first thing in both modes is to compose a principal mass from which the rest should appear to proceed, and seem to be connected. In common cases it answers best to include or connect with this mass the house, kitchen, and flower-gardens; from these, other masses and groups should proceed, either connected or seemingly so, when viewed horizontally. Their forms should be such, and so disposed relatively to the ground and other objects, and to each other, as to throw the pasture surface into broad masses, which become shades in their turn, and their connection and variation is heightened by the variety in the glades between the masses and groups of plantations. Such would be the mode of procedure on a flat to be formed into a modern park.

* The quality of the soil for a kitchen-garden must be particularly observed: this, it is true, may be improved by art, but it will be impossible to improve a bad situation. An ample depth of good soil is very important, and should it not be sufficient, a considerable expenditure must be incurred to render it so; the depth of good soil should be at least two feet, the most desirable is a black vegetable earth, or a rich free-working loam, not tenacious of wet. Should a desirable situation present itself as to aspect and general convenience, and the soil not be found of so tractable a nature as could be wished, or should a garden be already formed on an improper spot, then it will be requisite that the designer or person conducting the ground-work, should be conversant with the nature and treatment of soils generally, their chemical properties, and the best methods of correcting such as are bad. The kitchen-gardens of England were so scantily supplied with vegetables until about the end of the sixteenth century, as the pleasure-grounds and pastures were with shrubs and flowers. It was not till the end of the reign of Henry VIII. that any sallads, carrots, turnips, or other edible roots were produced in England; the little vegetables that were used were imported from Holland and Flanders. Queen Catherine, when she wanted a sallad, was obliged to dispatch a messenger thither on purpose. (Hume's History of England.) Their fruits, indeed, were neither numerous nor excellent, being chiefly confined to gooseberries, currants, and strawberries; what apples and pears they had were generally indifferent, and their plums and cherries bad; although the latter are supposed to have been planted in this country so early as the year 800, at which time they were brought from Italy. Broccoli, asparagus, and celery, were also brought to this country from Italy. Cauliflower from Cyprus, and spinage from Spain, all in the sixteenth and seventeenth centuries. That esculent root, the potato, did not make its appearance in Europe till Sir Walter Raleigh, a native of Devonshire, brought it, towards the close of the sixteenth century from America to Ireland, in which country it was first cultivated at Lesmore Castle, the present seat of his Grace the Duke of Devonshire. From thence it passed by slow degrees over to Scotland and the northern counties of England, and has since become general throughout Great Britain. The person who first planted them, imagining that the apple which grows on the stalk was to be used, gathered them, but not liking the taste neglected the roots, till the ground being dug afterwards for some other grain, the potatoes were discovered therein, and to the great surprise of the planter, vastly increased. For a long time after its introduction into this country, it was only placed in the gardens of the nobility, and it was looked upon rather as a curious exotic than a useful addition to our vegetable productions. In 1619, when its cultivation had become more general, its common market price was one shilling per pound.—(Beckman, vol. i. p. 334.)

Ben Johnson in his play, Every Man out of his Humour, Act ii. mentions potatoes then as a great rarity.—(Author.)

† Many farm-houses with extensive unconnected outbuildings in the old English style, do not accord well with modern park scenery, but as great improvements have recently taken place in the arrangement of these establishments, they may generally be considered an interesting and enlivening portion of distant scenery; they present a contrast to the cultivated and decorated scenes surrounding the seat, and will always be viewed with peculiar feelings of satisfaction, as the habitations are among the most valuable of a well-regulated society.—(Author.)

GRAPHICAL REPRESENTATIONS, LANDSCAPE DETAILS, PLEASURE GROUNDS & DECORATED SYLVAN SCENERY.

PLATE LVIII.

PLEASURE-GROUNDS, PARK PLANTING, AND DECORATIVE SCENERY.

——— "Does airy fancy cheat,
My mind well pleased with the deceit?
I seem to hear, I seem to move,
And wander through the happy grove,
Where smooth springs flow, and murmuring breeze,
Wantons through the waving trees."—CREECH.

WHO is insensible to the tasteful outline of the well-grouped plantation, to finely shorn grass, having shrubs and trees tastefully dispersed upon it; to the walk gracefully winding through the grove to some sequestered spot, assuming the appearance of neglected nature, where the purling stream murmurs through the thicket with its soothing notes reverberating and softened amidst the trees, until through the vista opening on the decorated scenery the eye is gratified and the heart delighted? The shrubberies are the most prominent features in rendering a country seat an object of ornament and delight, and it is in this department of laying out and planting, combined with taste, and a skilful appropriation of the ground, that an extensive practical knowledge is required to produce all the desired effect, not only for the judicious arrangement of the plantations, but of the various trees of which they are composed, and demands the exercise of true taste, that the component parts may be suitably disposed, as well in contrasts of form as of colour, so that they may appear to advantage when viewed individually or collectively.*

Part of the mansion may be seen from a summer-house in the pleasure-grounds with good effect, particularly if it be seen at a moderate distance, and between the boughs of trees, which, by the opposition of colour, will improve the glance at the house, and also excite pleasing ideas of home, comfort, and the charms of rural elegance. Vases and statues tastefully disposed about the pleasure-grounds belonging to classic architecture have a pleasing effect, and in extensive shrubberies the arrangement of statues and busts, if numerous, should be directed by classic taste, that they may be disposed with propriety and truth; no greater absurdity can appear than where such decorations are indiscriminately mixed, without literary order or classical associations. Those, observes Stewart, have added immensity to our natural resources: but at the same time, they have warped our taste in various instances. The prospect of a sheet of water seen through a vista claims attention; but if with these there be any undulating surface of ground, with a temple placed on a gentle rising hill surrounded by appropriate foliage, the scene is rendered particularly beautiful and romantic. The mind receives pleasing impressions of wonder and delight while witnessing the liquid element gushing between rocks, which sparkle with a diamond lustre as they fall, the cloudy spray reflecting in the soft and blended colours of the rainbow; then dashing with furious irregularity over bold projections and stupendous rocks: such a scene as this must be presented principally natural, but much may be done artificially to add to its grandeur; where such an object exists, the character of the sublime and picturesque in the surrounding scene must be maintained. Here masses of luxuriant trees surround the eminence, some projecting over the precipice, some bending midway, as if by magic power upheld; others dip their verdant foliage in the foam below, and the stately oak in wild magnificence, curves its bold roots amid the rocks, and stretching its huge arms, completes this scene of grandeur and sublimity. Planting, with a reference to park scenery, must depend in a great measure on the nature and contour of the surface. Where there is a variety of convex and concave, of hill and dale, fine effects may be produced by judiciously planting the hills, and leaving open the valleys for more pleasing contrasts; but this must be regulated by a judicious and refined taste. No formal group perched upon the top of a hill, no masses that might give the appearance of a wilderness should be seen; a flowing line united with a lightness of effect should be preserved throughout.†

* In forming plantations near the house, either to hide the offices or form ornamental groups, there should always be dispersed among them a great portion of evergreen shrubs, to preserve a lively and interesting appearance as well in winter as in summer. Although green turf is very pleasing and ornamental upon a lawn, still a large surface requires trees, decorative flowering shrubs, and plants to relieve the monotony of its appearance, and render the scene more pleasing and interesting; care must be taken to leave uncovered a sufficient portion of lawn for turf, as shall admit a free circulation of air and breadth of light, to display the form and effect of the surrounding plantations. Alleys leading to shady walks should be formed between the trees and shrubs. Vistas, which guide the eye to artificial objects or to distant beauties, should be particularly attended to; the characteristics of a pleasure-ground should be elegance, variety, and harmony, by judicious contrasts in the distribution of partial flower-beds, shrubs, and plantations, with other tasteful and appropriate decorations.—(B.)

† The disposal of trees in a park, either singly or in groupes, should be regulated by the views from the principal apartments of the house, so as to avoid obstructing any desirable scenery. A few trees may, consistently with beauty, be dispersed singly, but when they are grouped they should present no regular form, nor be crowded into masses; however they be planted, they should partake of what is considered rural beauty and artless simplicity, which constitute the most lovely scenes of nature.—(B.)

PLATE LIX.

IMPROVING GROUNDS AROUND A NOBLEMAN'S MANSION.

"Where the united plumage of an ancient wood extended wide its undulating canopy, and stood venerable in darkness, Kent thinned the foremost rank, and left but so many detached and scattered trees as softened the approaching gloom, and blended the chequered light with the thus lengthened shadows of the remaining columns."—WALPOLE'S *Anecdotes.*

THE character of the park should be grandeur, possessing extensive views, and ornamented with well-grouped trees, which must be accommodated to the line of surface that nature has furnished, to form a picturesque effect; the arrangement of objects should wear an easy irregularity in their outline; a lightness and airiness should pervade those in the foreground, and rude masses be opened to give forms suited to the prevailing character of the scene. Unless the beauty and grandeur which objects separately possess appear to the observer, there is a faulty and injurious arrangement. A good back-ground to a mansion is of great importance, and should in all cases be obtained if practicable, as no house can have an impressive and interesting appearance without it. A plantation thus situated, not only affords protection to the house, but assists considerably in relieving and supporting the effect of the scene. It must be evident that a promiscuous group of foliage is not the most suitable decoration for any particular spot; the infinite variety of outline that may be produced implies various degrees of perfection; for instance, if trees approximating in character and in tint of foliage be adopted, what is denominated a clump will be the inevitable result, and such a leading outline it will be in vain to attempt correcting by contrast in the shrubbery, only by laying the axe partially to the roots of the tasteless mass.*

The union of the fore-ground with the offscape, characteristically considered, produces great additional beauty; hills, distant woods and mountains, present variously enriched lines, which mark the boundary of vision. Where these forms partake of the broken or rough character, the fore-ground should assume the picturesque by irregularity of surface and appropriate planting. Where the distant lines are blended into soft or flowing forms, the graceful slope, or flowering lawn, will best harmonize, and, in either case, render the scene more desirable as the principal view from the mansion. A river running near a mansion imparts solemnity and grandeur, and if the banks approach each other so as consistently to admit of a bridge, which could be seen to advantage from the house, so many pleasing sensations are there connected with such an object, that it should be constructed with due regard to its character. Who ever beheld the grand and powerful effect of water at Blenheim and the noble bridge there, without emotions of surprise and admiration, or that at Compton Verney by the same great artist? Having treated on roads in our plan of Laying out Ground, we shall subjoin the late Mr. Repton's rules to be observed in laying out park-roads, as to their character, in a note below.†

* It is bad taste to plant in a form similar to the object intended to be hidden. It is also desirable to vary the forms of plantations as they recede or advance; by this the most pleasing effects may be produced. The principles of perspective will here be as applicable as in drawing from nature; by this, single trees and groups may be so disposed as to assist in giving an appearance of extent; here also the colours of the foliage are to be particularly attended to, and arranged so as to harmonize, and to aid the assumed increase of extent; the effect which may be thus produced is admirable, and may be considered one of the triumphs of the art of landscape-gardening.—(M.)

† The road by which a stranger is supposed to pass through the park or lawn to the house, is called an approach, and there seems the same relation betwixt the approach and the house externally as there is internally; therefore it ought to be convenient, interesting, and in strict harmony with the character and situation of the mansion to which it belongs.

In the modern style, it ought to be a road to the house, and to that principally.

Secondly, although not naturally the nearest road possible, it ought artificially to be made impossible to go a nearer way.

Thirdly, the artificial obstacles which make this road the nearest ought to appear natural.

Fourthly, where an approach quits the high road, it ought not to break from it at right angles, or in such a manner as to rob the entrance of importance, but rather at some bend of the public road, from whence a lodge or gate may be more conspicuous, and where the high road may appear to branch from the approach, rather than the approach from the high road.

Fifthly, after the approach enters the park, it should avoid skirting along its boundary, which betrays the want of extent or variety of property.

Sixthly, the house, unless very large and magnificent, should not be seen at so great a distance as to make it appear much less than it really is.

Seventhly, the first view of the house should be from the most pleasing point of sight.

Eighthly, as soon as the house is visible from the approach, there should be no temptation to quit it, (which will ever be the case if the road be at all circuitous) unless sufficient obstacles, such as water or inaccessible ground appear to justify its course.

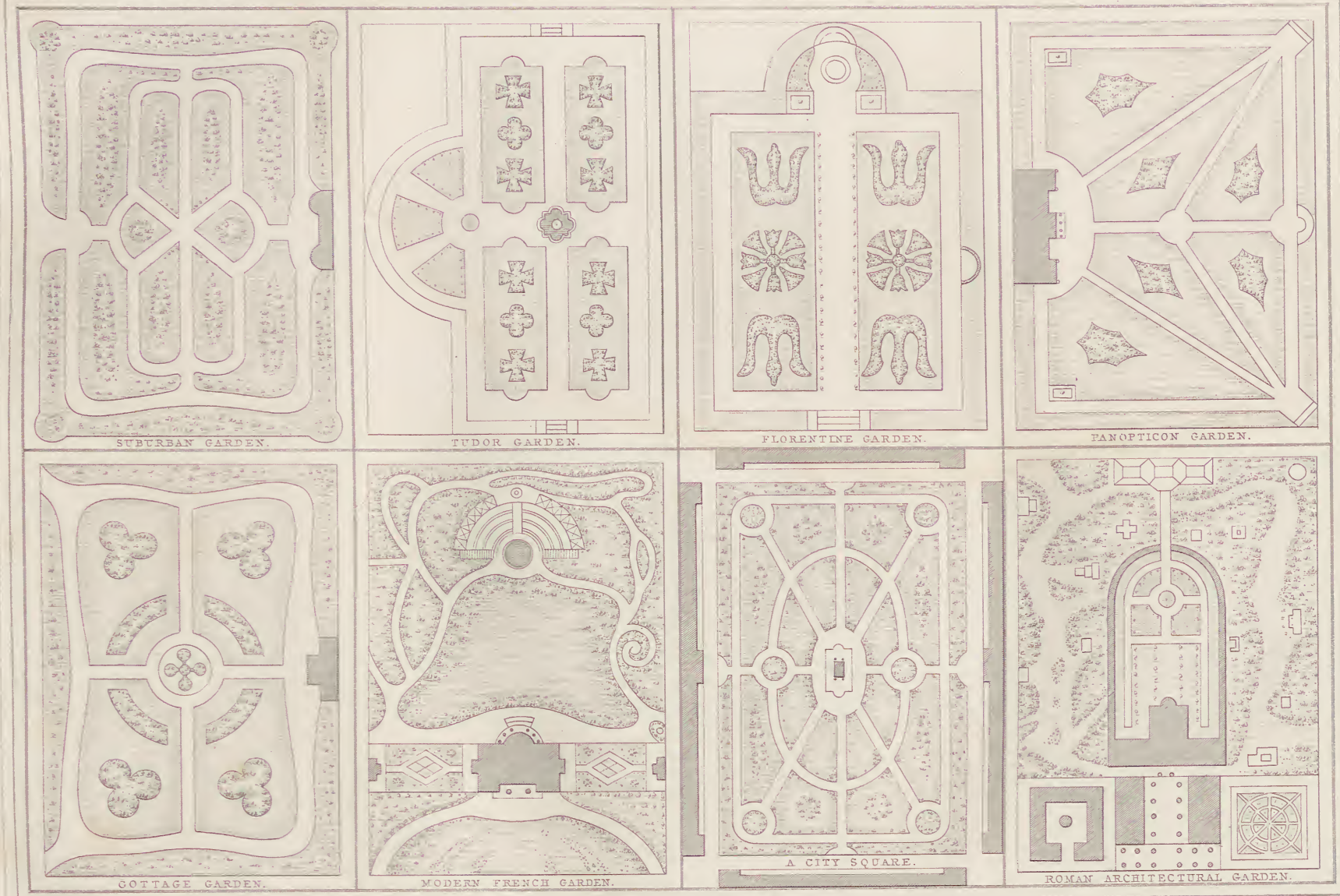
Finally, the principles for sufficient reason ought never to be lost sight of in laying out park roads; that is, no deviation from a straight line should appear for which a reason is not given in the position of the ground, trees, or other accompanying objects.—(H. R.)

Brown Arch.t

Engraved by Steph.n J. Davis

COSMORAMIC REPRESENTATION, OF IMPROVED SCENERY, AROUND A NOBLEMAN'S MANSION.

LONDON PUBLISHED BY GEO. VIRTUE, 26, IVY LANE.



R. Brown Arch.t

Engraved by W.W. Pybus.

EXEMPLARS OF VARIOUS STYLES OF FLOWER GARDENS.

PLATE LX.

EXEMPLARS OF FLOWER-GARDENS.

"Infinite numbers, delicacies, smells,
With hues on hues expression cannot paint,
The breath of nature, and her endless blooms."—THOMPSON'S *Seasons.*

WE have already said in the article on Laying out Grounds, that the flower-garden should join the conservatory, and the conservatory the mansion; but its situation must face the daily sun, which is south, and as the garden contains many choice and tender species of flowers, it must be sheltered on the north and north-east sides, from which points the most destructive winds proceed. No part of the flower-garden should be exposed: it offers in itself sufficient to contemplate and admire, and its character is best preserved and associated with retirement. As to the forms of flower-beds, we find there have been a variety of designs, most having been laid out in geometrical figures or scroll-work, and where they agree in character with the architecture of the mansion, there certainly appears no objection against them, but rather consistency, though there have been differences of opinion upon the subject. As to the arrangement of plants in the flower-beds, a diversity of taste exists. The connoisseur florist who studies only varieties of particular species of pink, carnation, polyanthus, auricula, &c., prefers having whole beds of each of these flowers; he is anxious for the number of varieties, and most ardently solicitous for those which are rare. The botanist in his scientific pursuits looks not for an unprecedented variety of colour, nor particular construction of forms, but arranges them in classes, and prizes a new species, although possessing no beauty, to the gayest flowers in the garden: while the general observer prefers a judicious arrangement of beautiful flowers, his pleasure being in admiring the harmony, the variety, and the splendour of the blooms.*

The disposal of plants in the beds of a flower-garden must depend upon the taste of the proprietor. Where there is no particular inclination to study plants scientifically, but as a flower-garden required for recreation and amusement, the object must be to produce a pleasing variety throughout the season; beds may be allotted to a general mixture of flowers, or to any particular species of choice or rare plants. Where there is an extensive collection of plants, flowers in pots may be reserved for adorning some beds, by a process denominated plunging, to reserve a continual succession of variety and bloom. This arrangement, if judiciously conducted, is best calculated to give general satisfaction, as it will afford attractions for the botanist, the florist, and the general observer. The plants for beds should consist of the handsomest flowering shrubs, the most ornamental herbaceous plants, and bulbous roots, of which there are a great variety applicable to this purpose; some of the flowering annuals will also add to the splendour of the scene.

In planting, rules are to be observed for the highest shrubs, the colour of their surface, and the times of blooming. In beds near a wall, plant the highest growing shrubs inside; plant the lowest shrubs near the walks. In detached beds plant the highest growing shrubs in the middle; let shrubs in beds assume the pyramid or cone in growing up. Let the hues of the leafage of the shrubs when planted be so disposed as alternately to vary, but not to be formal. Plant shrubs so that when the bloom of one is decaying its adjoining one may be budding or coming forward. Plant all bulbous roots so that they may come in succession, beginning with the most early; by this means you will have several sorts of flowers in the same bed alternately from spring to autumn. Sow annual seeds in the same manner as above. Flowering plants being inserted in beds bounded by trellis work and grass plats, will have the appearance of flower-pots or baskets of nosegays raising out of the ground in their most happy form, and the gardener who understands that branch of his profession, which treats of the rising of those plants, will know how to diversify the scene from month to month, and give at once a succession for the whole flowering part of the year. These plants being conspicuous in many kinds before they flower, they should be known; as in the disposition of shrubs there is a great deal of room for beauty and variety.

* No decisive testimony can be adduced that either the Greeks or Romans indulged a taste for flowers; not at least, that would imply their having had gardens set apart for their cultivation. The people among whom a taste for flowers was in modern times first discovered to prevail, were the Chinese, the Persians, and the Turks. The vegetable treasures of the eastern world were assembled at Constantinople, whence they passed into Italy, Germany, and Holland, and from the latter into England; and since botany has assumed the character of a science, we have laid the whole world under contributions for trees, shrubs, and flowers, which we have not only made our own, but have frequently improved in vigour and in beauty, while many of our native indigenous plants have also by care and cultivation been rendered worthy a place in any parterre. The introduction of this taste into Europe may be dated from about the middle of the sixteenth century, when Flora and Pomona changed the style and taste of our domestic gardens.—(B.)

PLATE LXI.

ITALIAN GARDEN, ORANGERY, AND HOT-HOUSES.

" Who loves a garden loves a green-house too,
Unconscious of a less propitious clime,
There blooms exotic beauty, warm and snug,
While the winds whistle, and the snows descend;
The spirey myrtle with unwith'ring leaf,
Shines there and flourishes. The golden boast
Of Portugal and Western India there,
The ruddier orange, and the paler lime,
Peep through their polish'd foliage at the storm,
And seem to smile at what they need not fear."—COWPER.

THE Italian garden is somewhat architectural, being formed of several plateaux, and each stage separated by a dwarf wall and steps, ornamented with statues and vases; those gardens likewise contain fountains, in the middle of which are Tritons, and sometimes vases on pedestals, with water rising and falling into basins. The most noted garden of this kind is that of Isola Bella in Italy,* and at Chiswick and Chatsworth in England.† That great improvement in modern gardening, the hot-house, was first invented by the Dutch, who had been previously acquainted with the use of tanner's-bark in forcing early vegetation, and was introduced into this country by William III., but for a long time confined to the mansions of the great. It was first employed in rearing large trees in Kensington Gardens, where the first orangery built by that monarch still remains. Not many years afterwards it was applied to the forcing of pine-apples, for which we are indebted to Mr. Bentinck; the introduction of the hot-house into England has, therefore, created a new era in horticulture, by supplying us with the means of imitating the temperature of every climate, and regulating it at discretion; it has afforded us the power of bringing the tenderest exotics to perfection; in fact, nearly rendering us masters of the vegetable productions of the whole world.‡

The most appropriate site for building the forcing-houses must also be noticed. These are adapted for utility, but may be ranged so as to form an additional ornament to a country-seat. It is a subject of gratification to the proprietor to inspect their contents, to observe the fruits through their various stages of growth to ripeness and perfection. The forcing-house should be in a situation of easy access, and should in general have a main walk in front, as visitors in viewing the beauties of a country-house take delight in seeing the perfection to which the art of forcing fruits has attained. The aspect for forcing-houses should be south or south-east, and should be situated at one of the boundary-walls; the north will be that for the aspect required; and the motive for placing them near the extremity of the garden is for the convenience of having sheds at the back for compost, garden implements, &c. Near this spot it is also convenient to have a melon ground, for forcing in pits and frames: especially as many of the successive crops are grown here, this department should not be distant from the forcing-house.§

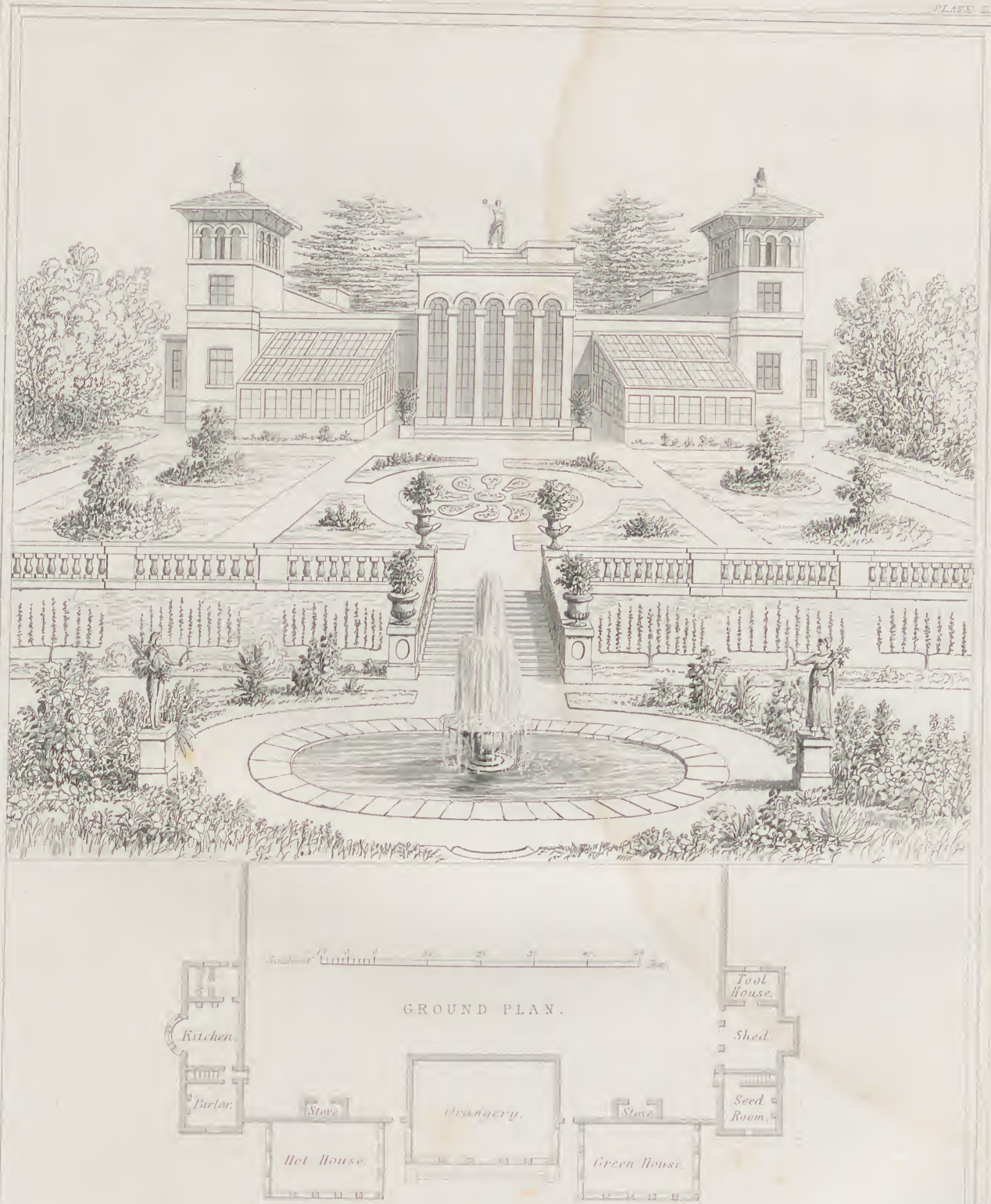
* The earliest notice of Italian gardening is in the work of Pierre de Crescent, a senator of Bologna; the work which he composed in the seventeenth century, and dedicated to Charles II., king of Naples. The author in treating on gardens of pleasure, divides them into three classes: those of persons of small fortune, those of persons in easy circumstances, and those of princes and kings. He teaches the mode of constructing and ornamenting each, and of the royal gardens, observes, that they ought to have a menagerie and an aviary, the latter placed among thickets, arbours, and vines; each of these three classes ought to be decorated with turf, shrubs, and aromatic flowers. The taste for distributing statues and urns in gardens among the Italians, began about the beginning of the sixteenth century by Cardinal D'Este, from the accidental circumstance of his having formed a villa on the site of that of the Emperor Adrian, near Rome, where, finding a number of antiquities, he distributed them over the newly arranged surface. This mode was soon imitated by Francis I. of France, and afterwards by the other European countries. Garden plants in vases or urns began to be introduced about the same time, and were used to decorate pedestals on each side of garden steps.—(A.)

† The gardens at Chiswick House, the seat of the Duke of Devonshire, are in the Italian taste, but divested of conceits, and far preferable to every style that reigned till our late improvements. The buildings are heavy, and not equal to the purity of the house. The lavish quantity of urns and sculpture behind the garden front should be retrenched. The larger court, dignified by picturesque cedars, and the classic scenery of the small court that unites the old and new house, are more worthy seeing than many fragments of ancient grandeur which our travellers visit under all the dangers attendant on long voyages.—(A.)

‡ The object of the hot-houses is to form habitations for vegetables, and such exotic plants as will not grow in the open air of the country where the habitation is to be erected; or for such indigenous or acclimated plants as it is desired to force or excite into a state of vegetation, or accelerate their restoration at extraordinary seasons. The former description are generally denominated green-houses or botanic stoves, in which the object is to imitate the native climate and soil of the plants cultivated. The latter comprehends forcing-houses and ordinary stoves, in which the object is, in the first case, to form an exciting climate and soil on general principles, and, in the second, to imitate particular climates. The chief agents of vegetable life and growth are heat, light, air, soil, water; and the merit of artificial climate consists in the perfection with which they are supplied.—(Loudon.)

§ A rosary is a delightful appendage in front of the orangery. It is at all times an interesting object; the great variety of the rose tribe permitting a constant succession of flowers renders the scene attractive throughout nearly the whole year. The climbing varieties are applicable to forming festoons, running upon wire-work.—(Author.)

ITALIAN GARDEN, WITH ORANGERY HOT HOUSES, AND GARDENERS RESIDENCE.



H. Brown, del.

Engraved by J. Redaway.

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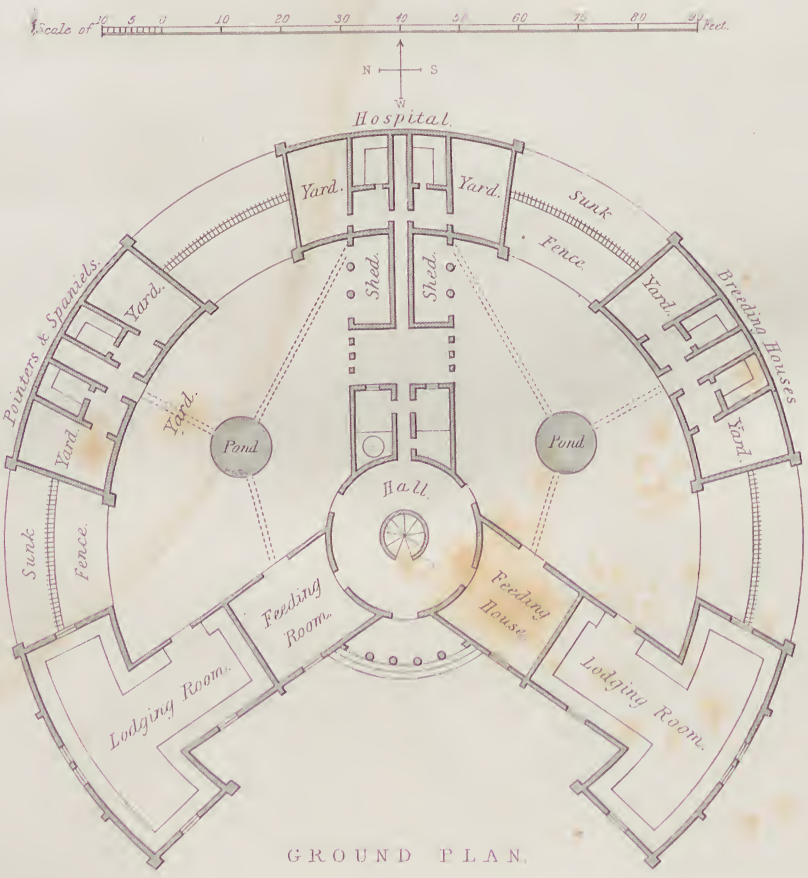
A DOG KENNEL.

PLATE LXII.

PERSPECTIVE VIEW.



GROUND PLAN.

R. Brown Archt.

Engraved by J.P. Armytage.

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PLATE LXII.

A DOG-KENNEL.

"Upon some little eminence erect,
And pointing to the ruddy dawn; its courts
Wide opening on either hand."—SOMERVILLE'S *Chase.*

A DOG-KENNEL being a necessary appendage to some noblemen's domain, we have given a design for that purpose; Somerville has pointed out the situation for a dog-kennel, and Beckford the arrangement for such a building, which may be considered sufficient authority on this subject. "Now," says Mr. Beckford, "two kennels are absolutely necessary to the well-being of the hounds, for when there is but one it is seldom sweet; and when cleaned out, the hounds, particularly in the winter, suffer whilst it is cleaning out, and as long as it remains wet afterwards. The floor of each lodging-room should be bricked and sloped to the centre, with a gutter left to convey the water off, that when they are washed they may soon be dry. The two great lodging-rooms should be exactly alike, and each have a court belonging to it. Distinct kennels situated at the opposite ends of the building for pointers; breeding-houses and hospitals should also be formed. In the centre (i. e. of the building) there should be a latticed room for the food, and the boiling-house, with feeding-yards on each side. The floors of the inner courts, like those of the lodging-rooms, should be bricked and sloped towards the centre, and a channel of water brought in by a leaden pipe running through the middle of each, to form bathing reservoirs, and to take off the scouring of the yard.

———— "Most happy thy design,
If at the bottom of the spacious court
A large canal, fed by the crystal brook,
From its transparent bosom shall reflect
Downward thy structure and inverted grove."*

The benches must be open, (formed of broad laths with narrow interstices,) and should have hinges and hooks in the walls, that they may fold up, for the greater convenience in washing; they should also be made as low as possible, that a hound, when he is tired, may have no difficulty in jumping up, and at no time may be able to creep under. Benches cannot be too low; if, owing to the smallness of the hound, it should be difficult to render them low enough, a projecting ledge will answer the same purpose; and the benches may be boarded at the bottom to prevent the hound from creeping under.

Beckford recommends a large grass court in front, with a mount and an open paling, that the hounds may have a view of the surrounding scene, in which he says they greatly delight, and that it tends to keep them quiet; and Somerville directs that the court be as open as possible, to receive

"The sun's all-cheering beams, when mild he shines,
And gilds the mountain tops. For such the pack,
(Roused from their dark alcoves) delight to stretch,
And bask in his invigorating ray.
Warm'd by the streaming light and merry lark,
Forth rush the jolly clan; with tuneful throats
They carol loud, and in grand chorus join'd,
Salute the new-born day. For not alone
The vegetable world, but men and brutes
Own his reviving influence, and joy
At his approach."

Now, instead of an open fence and raised ground for the dogs, our wall is sunk in a ditch whose banks are sloped on each side, forming an invisible boundary, which is far better. Over the hall of the kennel, ascended by a circular staircase, is a sleeping-chamber for the huntsman or whipper-in, whose duty it may be to attend the hounds at night, with low-sloped windows at the intersection of the roofs, looking into the lodging-rooms on either side.†

* Somerville recommends the adjoining field to be planted with spreading elms and fragrant lime-trees in equal ranks.

† If your hounds be very quarrelsome, the feeder may sleep adjoining the kennel; but if they be well chastised at the first quarrel, his voice will be sufficient to settle all their differences afterwards. In a kennel in Oxfordshire, the feeder pulls a bell, which the hounds understand the meaning of: it silences them immediately, and saves him the trouble of getting out of bed.—(Thoughts on Hunting.)

PLATE LXIII.

AN ICE-HOUSE.

" What art thou, frost? and whence are thy keen stores
Deriv'd, thou secret all-invading power,
Whom even th' illusive fluid cannot fly?
Is not thy potent energy unseen?
Myriads of little salts, or hook'd or shap'd,
Like double wedges, and diffus'd immense
Thro' water, earth, and ether?"—THOMPSON'S *Winter*

AN ICE-HOUSE must be built on the side of a hill facing the north, where not a ray of sun ever falls, and enveloped in an umbrageous plantation of evergreens, with ivy growing against its walls, and from the bank above in the rear, hanging partially over in pendants and festoons, giving to the whole house the appearance of a sombre grotto. The plan of the house itself should be circular, and the section that of the frustrum of an inverted cone. The walls to be built hollow or double, having a groove in the middle entirely around the cone, that the damp or water from the earth outside may not penetrate and affect the ice-well within, but pass off into the well below. The better to prevent the admission of moisture, well-tempered clay should be puddled and rammed round the walls on the outside. The ice-house itself, it is to be observed, must be sunk below the face of the earth. In the middle of the floor there is to be a large round cast-iron plate, perforated with holes, to drain off the melted ice into a well below, from whence it is carried through a pipe into a drain, but at the junction of the two there is to be an air-tight trap, which may be seen in the annexed Plate.

The entrance to the ice-house is to be by a closed passage, in which are steps leading down to the well, and a door air-tight at each end. To make this useful structure ornamental, a grotto is formed, as a sort of porch for the entrance, to be open in the front, and to have two rusticated columns on each side. In the grotto, shells, fossils, moss, &c. may be arranged; thus the building will become an ornamental object in the shrubbery.

A BATH.

As a bath is sometimes an appendage to an English mansion, we shall give a description for one. The plan of the interior part of a private bath, (that is the well of water,) should be of an oblong form, and with a semicircle at each end; there is also to be a walk all round the margin of this well, between the water and the outer walls; in those at each end, (which are also to be made concave,) there may be three niches, and in them may be placed Tritons, water-gods, sea-nymphs, &c. The walls of the bath outside are to be uniformly oblong, and in the front of the bath are to be two rooms projecting forward, with a portico in the centre; one room for undressing, the other for dressing, and for the bathing-gowns. The windows in the two rooms are to be high up, and those in the bath are also to be overhead, near the ceiling, to prevent being overlooked on the outside, or a lantern-light may be placed on the roof. The bath-well is to be lined both at the bottom and the sides with white Dutch glazed tiles: by this the least soil in the water will be visible.

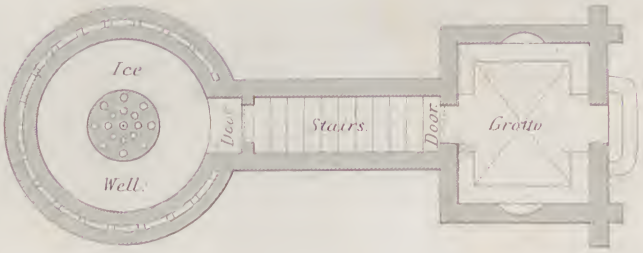
A DAIRY.

The dairy belonging to a gentleman's house in the country admits of a fine architectural figure, and for this the octagon is the most beautiful and appropriate. It assimilates in appearance with the Gothic chapter-house; but a dairy may be built in the rustic character, having a colonnade of truncated unbarked trees around the house on the outside, and partially covered with ivy. The interior of a dairy has a stone shelf, about three feet high all round, formed of blue slate, and supported by open arches below. The ceiling of the roof should rise in the centre, and the sides terminate with a flower. In the middle of the floor is to be a marble basin, supported on a pedestal, through which the water ascends and falls into the basin in sprays. The windows are to be latticed in summer and have casements in winter.

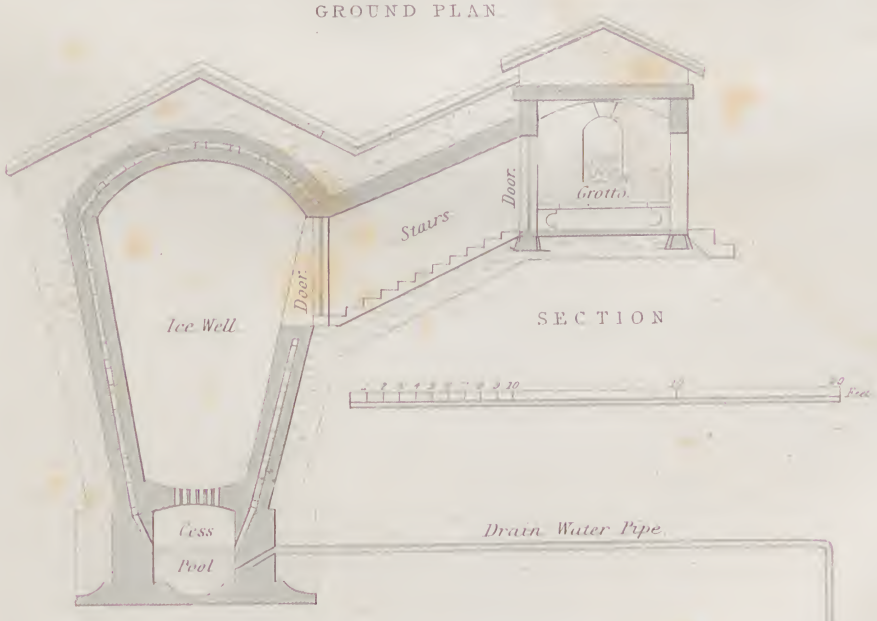
AN ICE HOUSE.

PLATE LXIII.

ELEVATION



GROUND PLAN



SECTION

N. Brown Del.

Engraved by J. C. Armytage

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CONCLUSION.

In conclusion, the author has to remind the professional person and the private gentleman, that in planning and designing both the useful and the ornamental buildings on the different parts of a domain, an appropriate situation and consistency of architectural character, as well as a good form and appearance, are at all times to be studied in connexion with the mansion, as the principal object of the picture: hence will occur the evident necessity of employing a person conversant with the practice of arranging and disposing such ornamental appendages. With regard to the picturesque, the beautiful, and the grand scenery on a domain, it has frequently happened with these appendages, (as well as with the mansion) that after they have been erected at a great expense, it has been discovered, on taking different views of them, that the design might have been far better, and the effect considerably improved, had the edifice been of a different plan and form; and that the character of the building, and style of the architecture, were neither appropriate nor in unison with the manor-house, as well as not corresponding with that of the surrounding scenery.

To guard against this, and to obtain some idea of the effect and form of an intended ornamental building, "we recommend some poles to be erected for a rough structure, and covered with matting upon the site, and of the form and size of the proposed structure;" by observing which from various points or stations, it may then be ascertained whether the form, the height, and the magnitude accord with the surrounding scenery, and if the object be well situated with regard to its effect from more distant parts of the grounds; for at times, these ornamental objects have a good appearance upon a close inspection, but appear inharmonious when viewed from a distance. Such a situation should be chosen as shall embrace as many views as possible, and it is desirable that such embellishments should be seen from different parts of the mansion. The paramount design of these buildings is to augment the interest and the character of the scenery; therefore too much attention cannot be bestowed upon a proper situation, style, and combination of parts; the beautiful and the picturesque of nature ever occupying the mind, and directing the hand.

"For various prospects gratify the sight,
And scatter fix'd attention in delight."

Rural scenery, in the grounds of a country residence, is now made to accord with the simple or the magnificent scenes which nature offers to the view; and in all the ornaments introduced, there must be an agreement with the respective scenes, at all times preserving the character of the useful and the elegant.

The decorative scenery that surrounds a country mansion will therefore ever be regarded in proportion to the harmony between the scenery and the mansion. This union can only be effected by the architectural landscape-gardener—one who unites both these qualities in himself. The various combinations of scenery that are appropriate to the picturesque cottage, the beautiful villa, the noble mansion, and the romantic castle of the baron, possess so many charms that admiration and rapture are but feeble terms to express the gratification which the cultivated mind of their owners feel and acknowledge, while contemplating those accompaniments of nature's grandest productions. To minds possessed of such good taste, we may therefore presume to hope it will not be deemed presumptive to assert, that the art of landscape-gardening where scenery is to be formed or re-modelled, may, by a judicious application of its powers, produce a harmonious whole, with that of the residence, and give an unison of character to the assemblage, not to be found in the promiscuous scenes of nature.

——————— "Alterius sic
Altera poscit opem res, et conjurat amice."—Horat. de Arte Poet.

"The works of Art are the more pleasing, the more they resemble those of nature: but mutually they need each other's help."
Roscommon

GLOSSARY

OF

LANDSCAPE-GARDENING TERMS.

A.

AMPHITHEATRE, a glade, or grass-plat in the form of a semicircle, surrounded or belted in a concave line by shrubs, or by a high mound.

ANCIENT STYLE, consists of avenues forming the approach to an old mansion, where the lawn is level, or regularly sloped from the house, common to abbeys.

ARBOUR, a sylvan bower, a recess in a plantation.

ARBORETUM, a place in a park for foreign plants.

AVENUE, a carriage-road formed by an equidistant row of ornamental trees on each side.

AVENUE DOUBLE, carriage and foot roads formed by an equidistant double row of trees on each side the road.

AVENUES INTERSECTING, those sometimes form the Greek cross, at others the martyr's cross, the star cross, and patee de oye or duck's foot.

B.

BEAUTIFUL SCENERY consists of uniformity, variety, form, and colours in the ornamental trees surrounding a country mansion: all commixed objects which possess a degree of elegance in their construction, partake of that quality denominated beautiful. A decorated lawn or flower-garden, neatly trimmed and preserved in order, presents the constituents of beauty.

BELT, a semicircular, or other formed plantation of thick trees and evergreen-shrubs for inclosing or circumscribing the lawn around a country-house.

BOWER, an arbour for a summer-seat, a recess arched overhead with woodbine or other climbing plants.

C.

CLASSIC SCENERY belongs to classical villas, and consists of high decoration of statues and vases placed among the park trees, and in the shrubberies. "This is called classical, as the ideas which such scenery excites associate themselves with those which the mind has previously received from the writings called classic."

CLUMP, trees planted in a round or oval form, compact together.

COMPOUND PLANTATION, a plantation formed of trees of different kinds, growths, character, verdure, and colour; as fir, oak, birch, elm, holly, ash, and laurel.

COPSE, a small thicket of brush-wood.

D.

DELL, a valley.

DIVERGING PLANTATION, scenery planted in triangular masses, separated by glades, and diverging from the dwelling-house.

F.

FOREST, an extensive natural wood of many acres, and wild scenery.

G.

GEOMETRICAL GARDEN, one formed of geometrical figures.

GLADE, a grass-plat bounded on the sides by trees or shrubs, an opening in a wood.

GLEN, a deep narrow valley between two mountains.

GREEK CROSS, one formed by equal intersections of four paths or avenues.

GROVE, a plantation of trees having no undergrowths.

GROUP, two or more trees planted near each other.

H.

HAW-HAW, a sunk fence invisible at a distance.

HOME SCENERY, scenery near the house.

L.

LABYRINTH, a maze formed by walks and hedges of yew.

LAWN, the grass ground in front of the mansion.

M.

MARTYR'S CROSS, formed by four paths intersecting, having two acute, and two obtuse angles.

MASS, a large clump of trees.

MIXED PLANTATIONS, those formed of trees with round heads, spiry tops, and pendant boughs.

MODERN STYLE, formed by ground, planted in serpentine groups, with winding carriage-road. The surface of the ground here requires undulation of hill and dale.

N.

NICHE, a semicircular recess in a shrubbery for receiving a summer seat.

NURSERY-GROUND, in which various shrubs and young plants are reared and propagated.

O.

OBLONG PLANTATION, a compact oblong square of trees.

P.

PANOPTICAN, triangular plantations radiating from the house, and separated by glades, having views open to the surrounding country.

PARK, an inclosed ground near the mansion for keeping deer.
PARTERRE, any form of figure in a flower-garden, inclosed within a border of box or other verdure.
PICTURESQUE SCENERY, the picturesque is opposed to regularity; it is essential also that it be diversified, and rugged in appearance; old and half-decayed trees, the rough and broken precipice, the sinuous and irregular banks of a river, display the picturesque.
PLATOON PLANTATION, a compact square of trees.
PLEASURE-GROUND, a shrubbery with choice plants, walks, and summer-seats. A place for rural retirement.
PROMONTORY, a headland.

Q.

QUINCUX, a ziz-zag plantation.

R.

RADIATING PLANTATIONS, those where trees converge towards the mansion or to a summer-seat.
ROCK-WORK, an ornamental pile of loose stones reared in the middle of a fish-pond or sheet of water, interspersed with grass, moss, and flowering Alpine shrubs.
ROMANTIC SCENERY, is that kind in which every object is wild, abrupt, and fantastic, in which endless intricacies discover at every turn something new and unexpected; so that we are at once amused and surprised, and curiosity is constantly gratified but never satiated, not only because it is similar to that usually described in romances, but because it affords the same kind of pleasure as we feel from the incidents usually related in such works.
ROOKERY, a grove near a country-seat where rooks build.
ROUND-HEAD PLANTATION, composed of trees, with round heads, as oaks, elms, and chesnuts.
ROSARY, a figured place where roses are planted.
RUSTIC SCENERY, consists of disjointed rock, a few aged trees, with a rivulet of water meandering between the stones, and circumscribed in extent.

S.

SCREEN, evergreen-trees planted in a position to protect a mansion from the northern winds.
SHRUBBERY, a rural plantation for morning exercise, retirement, or contemplation.
SPIRY-TOPPED PLANTATION, formed of trees with spring-tops, as firs, poplars, and cypresses.
STAR CROSS, paths in a garden intersecting, or coming in conjunction so as to form a star.
STRIPS, long slips of plantations.

T.

THICKET, where there are many trees growing together, and surrounded with thick underwood.
TOPARY-WORK, yew trees cut into birds and animals.
TURF COTTAGE GARDEN, a garden partly turf, and partly earth beds for flowers and shrubs.

V.

VERDANT SCULPTURE, evergreens cut into sculptured figures.
VISTA, an opening through a wood, or a plantation of trees.

W.

WILDERNESS, a confused plantation, where all vegetation grows wild.
WOOD, a large natural assemblage of trees.

TO THE BINDER.

The Plates throughout the Work to be placed in regular succession, with each facing the letter-press page, as shown in the Table of Contents.

THE END.

35—

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